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J. GEORGE ADAMI

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J. GEORGE ADAMI

Vice-Chancellor of the University of Liverpool 1919–26. Sometime Strathcona Professor of Pathology McGill University Montreal

A MEMOIR

by

MARIE ADAMI

Together with
contributions from others,
his friends

And an introduction by
SIR HUMPHRY ROLLESTON Bart.
G.C.V.O. K.C.B. M.D.

LONDON
CONSTABLE & CO LTD
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PREFACE

WITHOUT the help of many friends this book could not have been written, and to them all I wish to offer my grateful thanks. Foremost among them is the late Sir Arthur Shipley, Master of Christ's College, who gave the scheme his affectionate and practical support from the beginning, and in spite of grave illness put together, during the last few months of his life, an account of the Cambridge undergraduate days when he and George Adami began their long friendship, thus supplying a first-hand foundation for the earlier portion of this Memoir. Since his death his sister, Mrs. Hutchinson, and Professor Arthur Hutchinson, Master of Pembroke College, have kindly added details to what Sir Arthur had compiled.

In addition to writing the introduction, Sir Humphry Rolleston has acted throughout as counsellor and guide. Mr. Howard Goulty lent letters extending over a fifty-years friendship between himself and Adami, transcribed and edited many extracts, and provided details that would have been otherwise inaccessible. Mr. K. W. Monsarrat read the manuscript, made many helpful suggestions, especially on those portions dealing with medical matters, and compiled the bibliography.

A debt of deep gratitude is due to many others who have sent letters or supplied information, particularly

Sir Charles Sherrington, Sir Henry Hadow, Professor Ernest Barker, and Mr. Robert Young, the last three of whom provided much information about Adami's work on the Consultative Committee. Mr. J. M. Wordie of St. John's College, Cambridge, kindly looked out and copied many extracts relating to Adami's contributions to the Cambridge Natural Science Club, Mr. Ernest I. Robson wrote an account of contemporary undergraduate days, and Dr. E. Bosdin Leech has verified points of family and college life. Many useful details have been drawn from Professor L. R. Wilberforce's pamphlet, *The University of Liverpool*, 1903–1928. Professor W. Blair Bell, Mr. Hugh Rathbone, Mr. C. Sydney Jones and the Rev. K. E. Keith supplied valuable memoranda on various questions in the later period, and Mr. Edward Carey, Registrar of the University of Liverpool, kindly allowed easy access to Reports and Minute Books.

I am indebted to Professor A. S. Warthin, of the University of Michigan, for permission to reproduce as an appendix the appreciation which he contributed to the *Bulletin of the International Association of Medical Museums* in March 1929. Of the other five friends who have written separate articles, four were colleagues of Adami in Canada, where so much of his work was done. To their number should be added Professor A. B. Macallum, Emeritus Professor of McGill University, Montreal, as a collaborator in Professor A. G. Nicholl's contribution. Dr. Oskar Klotz and Dr. Maude Abbott, while in this country, made special journeys to Liverpool to give information on the Canadian period, and Dr. Archibald Malloch of the

New York Academy of Medicine and Mr. Cleveland Morgan of Montreal kindly compiled statements upon special points of interest in the same period. Very special thanks are due to Miss Joan Evans for correcting the proofs.

The index is the work of Mrs. E. M. White, and the photograph is reproduced by the courtesy of Mr. James Bacon of Basnett Street, Liverpool.

MARIE ADAMI.

Liverpool,
January 1930.

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INTRODUCTION

THIS memoir of a man of many activities and broad sympathies will not only appeal to the diminishing band of his contemporaries and to his numerous pupils on both sides of the Atlantic, but will provide a permanent record of an exceptionally gifted leader in pathological and general education. For more than twenty years (1892–1914) J. G. Adami taught pathology in McGill University, Montreal, on new lines, namely, by bringing the subject into close relation with other branches of science, as he was specially qualified to do from a long training in scientific biology at Cambridge; for example, he classified tumours on the basis of embryology; his philosophical articles on "Inflammation" (1896) and on "Inheritance and Disease" (1907) in Allbutt's and in Osler's *Systems of Medicine* respectively were obviously from a mind familiar with the problems of biology and could not have been written by an old-time pathologist pure and simple. He realized, and worked that others also should understand, that pathology is a branch of biology and that its future advance depends on adoption of this method of approach. This was set out in his pioneer work, *The Principles of Pathology* (1909), of which Professor A. S. Warthin says: "As we realize now, it had also a prophetic value in that it foreshadowed many of the chief principles of the medical philosophy of the present day"

His wide conception of the relation of pathology to other branches of biology was also shown in his Croonian Lectures before the Royal College of Physicians of London in June 1917, on "Adaptation and Disease," which, together with previous papers leading up to his argument, were published in 1918 under the title of *Medical Contributions to the Study of Evolution*. But in addition to insisting on this relationship with other sciences, Adami was active in enforcing the bearings of pathology on the practice of medicine and public health in its broadest applications. In Canada he was an inspiring leader in the campaign against tuberculosis and in efforts to protect cattle against various diseases, his eloquence and literary charm making his enthusiasm all the more contagious. His stimulating powers as a teacher are shown by the position and work of his pupils, such as Oskar Klotz, C. W. Duval, W. W. Ford, G. A. Charlton and Maude Abbott. With his broad outlook he was admirably fitted, when called by an intense patriotism to the defence of the Empire in the European War, for the post of Assistant Director of Medical Services in the Canadian Army Medical Corps; in this capacity he was officially in charge of the records, and accordingly wrote the first volume of *The War Story of the Canadian Army Medical Corps* (1918), which brought the history down to the autumn of 1915; in addition he stimulated research, and did good service for the Medical Research Committee's special committee appointed to report on the standardization of routine pathological methods. With his personal characteristics, close touch with general culture, and wide knowledge of science and

medical education he was exceptionally equipped for the Vice-Chancellorship of Liverpool University, to which he was unanimously elected in June 1919, and there continued his busy life on perhaps even broader lines than before, but with the same efficiency and success that had distinguished his work during the previous quarter of a century.

To those fortunate enough to know him well, Adami stands out as possessed of a genius for friendship, and has left behind an unforgettable memory of charity in its best sense. Though a wise citizen of his world he was truly but unobtrusively religious, and while always accommodating was quite fearless in speaking out for what appeared wholesome and right to him, though it might not happen to be the popular view at the moment, and in supporting the claims of an investigator who might not have received the approval of the orthodox. For some two or three years he had with silent and gallant cheerfulness fought a disease the outcome of which he must, more surely than most medical men, have known to be inevitably fatal, and with rare courage successfully carried on his varied activities until almost the end.

All these aspects of a many-sided and charming personality are presented in detail in this appropriate memorial of a man the like of whom we shall not see again.

HUMPHRY ROLLESTON.

J. GEORGE ADAMI

CAMBRIDGE

JOHN GEORGE ADAMI was born at Ashton-on-Mersey, Lancashire, on January 12th, 1862. The name is of Italian origin and was well known in Italy during the sixteenth century. During the Lutheran Reformation the family was torn by religious conflicts and strifes, and split into two groups, those who retained the ancient faith remaining in Italy, and those who embraced Protestantism settling in Bavaria. It is to the second branch that Adami's family owes its descent, and within it there was for two centuries a strong medical bent. So far back as 1659 we find medical men; in direct descent throughout the eighteenth century there was a series of four surgeons, and the elder brother of his grandfather, one Valentine Adami, became Court Physician to the Grand Duke Nicholas of Russia, and with him went through the Turkish war of 1823. The love of learning and letters and the aptitude for foreign tongues shown in such marked degree by George Adami may have been inherited from these earlier generations, for Valentine Adami's medical thesis shows him to have been well versed in general literature and especially in Sir Thomas Browne's *Hydriotaphia*. With Adami's grandfather this medical tradition lapsed for fifty

years. His father, also John George, received his early education in France, and finally came to England, was naturalized, and settled down in Lancashire. Here, in 1858, he married Sarah Ann Ellis Leech, the eldest daughter of Thomas Leech of Urmston. Family genealogies show that the Leech family, which was of yeoman stock, originated with one John of Bosden, who was born somewhere about 1400, and who was given the name of John the Leche by reason of his profession, and subsequently took the surname of Leech. From the fifteenth century onwards this family raised a succession of parsons, farmers and doctors, and after 1836, when it finally settled in Urmston, Lancashire, this last tradition was still maintained. One of George's uncles on his mother's side was Sir Bosdin Leech, Mayor of Manchester 1891–92, and another was that much-loved physician Dr. Daniel Leech, for many years physician to the Manchester Royal Infirmary, and Professor of Materia Medica and Therapeutics in the Owens College of the Victoria University.

It is clear from this that George united in himself two streams of medical interest and tradition. He was likewise the product of two widely differing outlooks and trainings. His mother came, as we have seen, of the English yeoman class; she was a woman of a wide and generous heart, of tender sympathy, of simple beliefs, who had passed a sheltered early life in Lancashire country. His father had spent his childhood and young manhood abroad, was at home in most of the capitals of Europe, spoke three or four languages fluently, and was easily conversant with

the artistic treasures of all the countries he had travelled in. George often said in later years that he felt two differing streams of thought within him, and did not know which was the stronger—almost, as he said sometimes, as if he were two distinct personalities. "I am an example," he wrote once, "of the essential duality of our being. I feel myself to be two persons in one: the one, absolutely lazy, with a south-European constitution, a continual shirker of difficulties, the other, an almost puritanic slave to duty, enjoying work and undertaking it for its own sake, and heedless of immediate and future personal benefits. Between these two somewhat opposing tendencies my life passes, and the tragi-comedy of the whole is the way in which the one being is engaged in trying to fool the other." To the end of his life there were within him these two traditions, and he knew himself the child not only of a peaceful English country-side, but of foreign cities with their movement and charm.

George's father settled in Manchester, and it was there that George was christened in the Cathedral, a month after his birth. There were nine children of the marriage, five sons and four daughters, and he was the second son, but owing to the fact that the eldest son Harry went to Australia early in life and died there before he was thirty, George became virtually the eldest. His home life was easy and happy. His father, who had been for some time proprietor and manager of an hotel in Manchester, moved after a few years to Ashton House, Ashton-on-Mersey, and it was there that this large and cheerful family grew up, all the brothers and sisters being always

strongly and affectionately united. Those living at the present time are Sir Leonard Adami and two sisters, Eva, wife of J. McLimont of Quebec, and Lisette, widow of J. H. Stirling of Belfast. The house was pleasant and sunny. It remained the centre of the family affections until Mrs. Adami's death in 1904, and to it children and later on grandchildren returned, while relatives and friends old and young found it a happy meeting-ground, and wrote to Ashton House of their own affairs, of happenings large and small. Mrs. Adami was an inveterate letter-writer and she replied to every note that came to her, and was often mildly reproved for her voluminous correspondence by George.

Meantime he had been sent, at the age of ten, to Old Trafford School, and it was there he formed his lifelong friendship with Howard Goulty, one of the three great friendships of his life. Perhaps few men have had more friends, owing to his own sunny and unselfish temperament, but his natural reserve was very strong, and his fullest confidence and affection were given to three only in his life—to Howard Goulty, to the late Sir Arthur Shipley, Master of Christ's College, 1910–27, and to Sir Humphry Rolleston, now Regius Professor of Physic at Cambridge. For all of these he cherished in different ways a deep and proud affection. With the first of these, Howard Goulty, his school-days were passed in happy rivalry as to who should be top of the class. Twice they tied at the head of their form, first in the second form and afterwards in the fifth. Their school did not number more than a hundred boys, but the education given

was of unusual excellence. It is of interest to note that among Adami's contemporaries, two besides himself became members of the Royal Society and another President of the Oxford Union. Nor were games and physical training neglected. During the years Adami spent there the school was easily the best at cricket in the Manchester district. Adami drilled and took his part with others in the gymnasium and in games too to some extent, but athletics possessed no fascination for him. While others of his class were on the cricket or the football field he was spending his afternoons in the Chetham library, reading, reading, with his fingers stuck in his ears, and there laying the foundations of an intellectual curiosity that ranged, even in those early days, over many branches of knowledge.

It was perhaps this absorption in books that gave him, while yet a boy, a critical taste in art and letters that was unusual and that his father took care to foster and develop. In the first years after her marriage, his mother did not stir much from home. She was intent upon household cares; his brothers were much younger than himself, and it was left to him to accompany his father upon his frequent holidays abroad, thus acquiring his lifelong love of travel and of continental cities and their treasures. At Brussels they spent hours in the Royal museums, and from his eager letters home it is clear that it was here that George first discovered the fascinations of colour and of design. He spent absorbed days making drawings of the treasures round him. They went to Wiesbaden, to Baden, to Bamberg, and one entrancing visit was

to Nuremberg, where the Cathedral was haunted by George at all hours. Later on they went on a walking tour in the Rhine valley and he learnt to love the succession of castle and wooded heights, and the stately flowing of that noble river, all the time enjoying himself in boyish pursuits. Nothing escaped his eager notice, all was at once new and delightful and yet in a curious way familiar, as if he himself had always known these foreign places. His letters were full of all he saw, and while his father was interviewing his business friends, George was spending long days in the china and porcelain works, exploring the galleries for rare specimens of either, and training himself in the marks of their craftsmen and designers. In later years he looked back to these holidays with keen pleasure, and owned with gratitude that his artistic tastes had been largely developed by the hours which he had been encouraged by his father to spend among the treasures of European museums and galleries. With so much of the artist about him it is perhaps a little surprising that he should have turned so definitely to a medical life, but there was, as we have seen, the hereditary medical background, there was the vivid example of his uncle, and there was as well one circumstance to which he himself attributed some of his determination to adopt medicine. Sunday after Sunday, as he has himself explained, in the parish church of Ashton-on-Mersey, he sat opposite to the marble tablet of "Charles White, Master of the Corporation of Surgeons and Fellow of the Royal Society," an epitaph to be read and re-read by him so that forty years later

he could repeat it by heart. "There was something in its formal wording," he writes in 1907, "something in the rotundity of its periods, something in what it suggested of the greater world, that exercised a fascination upon me"; and he adds, "Has that old epitaph coloured my life?" It is perhaps not too much to assume that this was an added incentive to a mind that was unusually receptive to romantic stimulus. Many years later he wrote a short life of Charles White and embodied it in the Lloyd Roberts lecture which he delivered in Manchester in 1921.[1] Whatever it may have been that finally decided his choice, it was made by 1878. He closed his school-days with a first class in the London Matriculation and went to Owens College, Manchester. Here he was a student for two years, taking the preliminary science course and the London first B.Sc., and spending his vacations at Ashton or abroad with his father. Having passed the Previous Examination he entered Christ's College, Cambridge, in October 1880, and his real scientific life began.

When Adami went up to Cambridge—more mature in outlook and temperament than most students of his own age—he found himself in an atmosphere of exciting scientific discovery. Echoes of the great

1 "Charles White, Surgeon and Obstetrician," by J. George Adami.

Reprinted from the *Medical Library and Historical Journal*, Vol. V, March 1907, No. 1. An address delivered to the McGill University Medical (Students) Society.

"Charles White of Manchester (1728–1813) and the arrest of Puerperal Fever," being the Lloyd Roberts Lecture, Manchester Royal Infirmary, 1921, by J. George Adami. The University Press of Liverpool, 1922.

Oxford Meetings of the British Association of 1861 were still in the air, Darwin and Huxley were alive, and the influence of their thought, discoveries and teaching was just beginning to bear fruit. It was indeed to Michael Foster, perhaps the greatest of Huxley's pupils, that much of this scientific renaissance was due, and it was to him that Adami owed that early passion for Biology and Physiology that was to stamp all his future work. It was in 1870 that Foster had come from University College to Trinity as Prælector in Physiology, and although it was not until 1883 that the Chair of Physiology was founded, during the intervening thirteen years he had become one of the great forces in Cambridge and was already building up the great school associated with his name. Foster was fully imbued with the ideas of Sharpey and Huxley, and realized his subject not merely as a department of medical learning, but as an integral part of the whole science of biology. He gave his pupils a sense of the unity of all knowledge, and as a teacher he added to these ideas an enthusiasm and a personal charm which quickly drew younger men to him and which stimulated many of them to a lifelong love of research. Within this circle Adami soon found his place. He became one of Foster's most enthusiastic pupils, and later his friend. In an address delivered in Canada in 1914, entitled "A Great Teacher and his Influence," he strove to re-create something of this kindling personality and its effect on the Cambridge of his own time, and in particular to show the insistence Foster laid upon the union of theory and practice. "I can see him now,"

he wrote, "standing there, before his blackboard, with no table before him, without a note, without a diagram save an occasional very elementary figure drawn without artistic practice upon the board, and can almost hear again the deliberate yet forceful speech, emphasized from time to time by bringing the chalk in the right hand down into the palm of the left. His men were not to depend upon a diagram, but upon what they actually saw. And after the lecture we trooped for a two-hour period into the laboratory, where the teaching had, whenever possible, a direct bearing upon the subject of the lecture." This scene is one which Adami often described in after life, and if his own teaching was of a more exciting and eager nature he owed much to Foster as an inspiring example.

But Foster was to many of his pupils much more than a teacher. He became their confidant and friend. "We regarded him," says Adami, "with an almost filial affection, and in any difficulty we tramped or bicycled out to his house at Little Shelford or sought him at the laboratory, sure that he would hear and discuss our matter and give us wise impartial advice." One of these talks recalled by Adami in the same paper refers to a discussion that throws light on future developments. "'Adami,' said he, 'take warning never to write a text-book. If it is a failure it is to be thrown away and worse than wasted. If it is a success it is a millstone around your neck for the rest of your life.' Despite this advice I have transgressed; I should never have thought of writing a text-book but for Michael Foster, for the admirable

example he had given of what a text-book should be, for this suggestion that I might one day perpetrate one. Now in sackcloth and ashes I have to admit the truth of his warning."

It is from such recollections as these that we can trace the guiding influence of Adami's early college life.

Other great teachers in the Cambridge Science school were Professor Newton, Sir George Humphry, Sir George Paget. A brilliant centre was Francis Balfour, from whom he learnt Zoology. His death in 1882 while mountaineering in Switzerland cut short a career of extraordinary promise, and called from Huxley the appropriate quotation, "For Lycidas is dead . . . and hath not left his peer." It was within this circle that Adami found himself, and his eager mind quickly sought to draw from all of it its richest and best. In this he was not alone. Among his contemporaries were an unusual number of those who have since become famous in the medical and scientific worlds—D'Arcy Thompson, Henry Head, W. B. Ransom, Sherrington, Bateson, Harmer, Shipley; and it was with the last of these, Arthur Shipley, that he became close friends. Sir Charles Sherrington says, "It was always Adami and Shipley in Cambridge."

Christ's College was in 1880 one of the smaller colleges of Cambridge, but it had always held a strong and independent position, and at that time the resident society was liberal and progressive, with Cartmell as Master and John Peile as Science Tutor. Adami had chosen Christ's for its growing reputation in natural science, but beyond this he found himself in a college

that was steeped in beauty and an historic past, and that was small enough to allow every student to absorb something of the real spirit of the place. Every inch of it became dear to Adami—the gardens, the courts, the great mulberry tree, the swimming pool. In later life he would often describe in loving detail for those who did not know them the peculiar ancient graces of the College, in particular the relics of Margaret Beaufort, its Royal foundress—the powder closet from which she and her Confessor, Bishop Fisher, could look into the hall below, the tiny window from her private room to the chapel Altar; or, again, the picture of her which hangs above the white-panelled hearth in the State bedroom of the College, from the black frame of which she gazes down, white-coiffed and silent, in a perpetual smile of gentle dignity. Perhaps his long absence from England gave a special vividness to his memories, but his affection was not of a solely romantic nature. When in 1911 the Master's Lodge was reconstructed and enlarged, he wrote to Shipley offering any gift that the College might choose. The gilding, enriching and illuminating of the College arms above the door to the Master's Lodge from the first Court was his gift.

Adami went into residence in the Michaelmas term of 1880, and in 1881 he was elected Scholar of the College; he kept in G 1 the spacious rooms which tradition said had once been Calverley's, and his cheery friendliness soon made them a centre for congenial gatherings. Here, as Shipley describes, he would always get up a dinner for any of his com-

panions whose luck had not stood him in some examination, and in one memorable May the first College dance was held there, the forerunner of the College balls of a later day. He took a very active part in the social affairs of Christ's and revealed himself as an effective speaker with a sense of humour and power of extempore speech both at the College Debating Society and at the Union. As a scholar he took his turn in reading the lessons in Chapel, sometimes to his own mischievous delight, as he describes in a letter home. "I had that wonderful passage of denunciation, 'Woe unto you, Scribes and Pharisees, hypocrites,' and I read with very considerable force, so much so, that, though I was quite ignorant what effect I was producing, the whole Chapel was violently agitated and Shipley set all around him shaking." He went through none of the spiritual or political storms that accompany many undergraduates; this was probably due to the unusual power of concentration and detachment which was his all his life and which protected him from many side excursions of thought. In after life he would compose a speech with three or four people talking round him, deaf and blind to everything save his subject. So, in these his early days, he was absorbed in the introductory stages of what he saw was to be his life-work, and it held him and all his powers. Some years later, when his work brought him back to his old College as a demonstrator, he threw himself energetically into all the new ventures of the place, helping to collect subscriptions for the new boathouse, serving on the Managing Board of the reading-room, and writing

articles for the College Magazine on such subjects as "Sir John Harrington" and "Henry More," careful and scholarly treatises, the results of long and detailed study.

Adami was never an athlete in the modern sense, and even in his early days he neglected to take sufficient open-air exercise. Other things occupied his afternoons—the Fitzwilliam Museum where Sir Sydney Colvin's demonstrations on art were a continual source of delight, and the University laboratories, where, to quote Sir Arthur Shipley in his *Cambridge Cameos* (p. 161),[1] he and his companions "fell under the glamour of Morphology." "We were not very far off from the *Origin of Species*," he writes, "and we were even contemporaneous with Darwin's later works, all of which dealt with living creatures, living organisms, and yet our obsession was with the dead, with bodies beautifully preserved and cut into the most refined slices, stained in various fragments so that, like the king's daughter of the Psalmist, they were 'all glorious within. . . .' Adami . . . and I spent our afternoons during half a term in cutting into thin slices a small Amphioxus—there was no automatic microtome then, and each section had to be mounted on a separate slide—when really we would have been better employed on the river or on the football field."

Yes, no doubt it would have been better, but such absorption had its own reward, and that Adami was soon recognized as a student of unusual promise may

[1] *Cambridge Cameos*, by Sir Arthur E. Shipley. Jonathan Cape, London, 1924.

be gathered from the fact that during his first year he was elected a member of the exclusive Natural Science Club—a very unusual honour. To this he contributed three papers, "Rudiments in Man," "The Thymus Gland," and a third that deserves notice for its relation to the later work of his life: "Medical Degrees with special reference to the new Medical Act." The paper was a denunciation of the Act then before Parliament, which sought to provide a single form of entry to the medical profession through the General Medical Council. He showed a wide and mature outlook over the general field of Medical education, and discussed in particular the part which the same may assume within the life of a University. Four other papers of a lighter nature were read by him before the Club after his return to Christ's as Demonstrator in 1887. These earlier gatherings provided the cheerful background for his speech when he proposed the toast of the Club at its thousandth meeting—a dinner held in the Combination Room of St. John's College on January 24th, 1920. The manner in which he developed his main theme, "the versatility of a Vice-Chancellor," showed that he had not lost that lightness of touch which, to quote an eminent authority, was one of the chief requirements of the Club from its members.

In 1882, Part I, Class I of the Natural Science Tripos held an interesting list of names—Head, Bateson, Sir Sydney Harmer, D'Arcy Thompson and several others were in the lists—and an incident occurred which was always cherished by Shipley and Adami. In those days the Examiners had no fixed date and time for

the publication of their lists—they were put up so soon as they had finished signing them. Francis Balfour had bidden to dinner a gathering of Tripos victims, including Shipley and Adami, upon the day of publication, and each one had scanned the screens on the way to his rooms in the New Court at Trinity, but finding nothing had sat down to dinner in a state of anxious apprehension. "Towards the middle of dinner," writes Sir Arthur Shipley, "Bateson, who had been exhibiting every symptom of undue excitement, received a message saying a lady was waiting to see him. His family at that time lived in the town and his sister had come in to tell him he had got a First. That, however, in no way allayed our anxiety, and at the earliest possible moment we begged to be excused. Whereupon Balfour asked us why we wanted to go so early. We explained to him the situation. He then said, 'I will give you a pass to come back to Trinity, and two of you can go round and read the list by the light of this bit of candle and come back and tell us.' Thompson and I were the deputed two, for at that time there were very few fences I could not get over easily! Fortunately all had obtained Firsts." The two explorers then returned in triumph to Trinity, the only signs of their expedition being wax droppings from the guttering candle and the loss of a small portion of Shipley's watch-chain. Two years after this famous dinner-party, in 1884, Adami secured a First in Part II of the Natural Science Tripos and his ordinary undergraduate life was ended.

It says much for his powers of concentration and

detachment and for his general poise that the results were so satisfactory, for family affairs had engrossed all the spare hours of his last year at Christ's. After a protracted illness his father died in December 1883. Hard as it was for the whole family to bear, the loss meant more to Adami than to anyone else except his mother, for he and his father had always been close friends; they had been much together both in England and abroad, they had shared the same tastes and interests, and his father had from the first entered keenly into Adami's scientific ambitions. To the end of his life Adami kept in silence and alone the half-hour from 6–6.30 of Christmas Eve in memory of the evening of December 24th, 1883, when he had watched his father die.

Adami at once took upon his shoulders his father's responsibilities. He was only twenty-one, but he found himself in charge of a large family, with his father's estate to administer, with his mother to cheer and guide, and with the education of his younger brothers and sisters to supervise and control. In all this he displayed a discretion and an affectionate wisdom and power of direction that were unusual in a boy of twenty-one. He chose the preparatory and later the public schools for his two brothers, watched them in their development and progress at both, and advised them after long and careful consideration upon the choice of their University careers and professions. "He seemed," says his younger brother Leonard, "to have had an instinctive understanding of a boy's mind." He kept up with them and with their two sisters a constant correspond-

ence, teasing, advising, arguing, guiding, often illustrating his notes to the small members with side sketches of their doings and of his own. He sent them abroad to learn foreign languages, he had his brothers to stay with him in Paris—his sisters for short and delighted visits to Cambridge. For Chrissie, the sister next to him in age, he had all his life a special devotion, and it was to her that he confided his plans and hopes for the younger children. She was his first playmate, and during these Cambridge days his confidante and friend. With her early death some ten years later one of the greatest joys of his life went out.

With responsibility thus thrust suddenly upon him and with his own training not yet complete, it was fortunate that his father's death caused no crippling of the family resources. His own plans were able to go forward, and in 1885 he went for eight months to Breslau to work at physiology under Heidenhain, "to get," as he wrote, "so part of one's subject that it became part of one's dreams." A paper delivered in the following year, "Medical Education Abroad," shows how quickly he was at home in a continental laboratory, and how much he identified himself with his cosmopolitan surroundings. It would appear that it was during these months that the real nature of his future work became clear to him, as medical research rather than medical practice, for he confesses that he is most reluctant to return to England for his clinical experience. But he did return, and the next two years, 1885–87, found him back again at Owens College, Manchester, doing his hospital work as house

physician for six months at the Royal Infirmary, under his uncle, Dr. Leech, spending his free time at Ashton-on-Mersey, and during one summer filling the old home with distinguished guests for the Meeting of the British Association of 1887, which met under the presidency of Sir Henry Roscoe. They were an active and on the whole a happy two years, but they only confirmed him in his Breslau decision. He became George Henry Lewes Scholar in 1887, and when in the following year he returned to Cambridge, it was as University Demonstrator in Pathology, and the title of his life-work had been written. From that moment Pathology held him.

The next four years were some of the happiest and busiest of his life. He was working hard at his chosen subject; he was assistant to a Professor whose great passion was experimental work, and who gave his eager junior every chance of research, and he was beginning to find that he could teach. Professor Roy, who had been elected to the newly-founded Chair of Pathology in 1883, had an unusually brilliant succession of demonstrators, including Joseph Griffiths, reader in Surgery (1898–1903), Almroth Wright, and in 1888 Humphry Rolleston as the immediate predecessor of Adami. Together with Roy Adami did a large amount of research on the cardio-vascular system, as may be seen from contributions such as "Heart Beat and Pulse Wave,"[1] "Remarks on failure of the Heart from Overstrain," the opening paper in the Pathological Section at the Glasgow Meeting

[1] See *Brit. Med. Journ.*, Obituary notice, Sir Humphry Rolleston, September 11th, 1926.

of the British Medical Association.[1] In 1892 the most important of their joint publications, "Contributions to the Physiology and Pathology of the Mammalian Heart," appeared. Adami was meantime busy on his own account, bringing out shorter papers, one of which, "On the Variability of Bacteria and the Development of Race," was on a subject to which he returned on many future occasions. "Here I am," he wrote to his mother in May 1890, "up to my eyes in work—demonstrations, lectures, examinations, articles to write for the *British Medical Journal*, the *Medical Chronicle*, *Natural History Magazine*, *Home Reading Union*, *Athenæum*, and I don't know what besides."

But the unique pleasure of this period was undoubtedly due to the fact that he was living in his old College once more, and in the Combination Room had watched, and in time become a member of, a little group which owed its spirit and its distinction to that extraordinary genius, Robertson Smith, Lord Almoner's Professor of Arabic since 1883. When Adami returned to Christ's in 1887 it was to find that Robertson Smith, finding his Professorship and the joint editorship of the *Encyclopædia Britannica* not enough for his energies, had become University Librarian, and was established with his pictures and books (the latter already overflowing everywhere) in rooms in the Fellows' Building. Shipley was already a great friend of Robertson Smith's, and Adami was soon drawn under his fascination. Twenty-five years later, in an article in the Montreal

[1] See *Brit. Med. Journ.*, 1888, ii.

University magazine, he drew a vivid picture of the after-dinner conversations of that time, which, inspired by Robertson Smith, dealt with equal knowledge with the modern novel and the Book of Job, with art criticism, manufacturing technique and the bouquet of Château wines. He described the succession of distinguished visitors who came to Christ's as Robertson Smith's week-end guests—now a politician like James Bryce, now a great surgeon, now Foster White, the Rembrandt authority, and on one occasion the Nihilist Prince Kropotkin—all welcomed with a fine impartiality, and bringing into the sober College atmosphere the bustle and stir of the outside world, all summoned and held by the brilliance, the wit, the friendliness of their host. One might perhaps quote from the preface to the *Golden Bough* where Sir James Frazer, speaking of Robertson Smith, writes of "the vast stores of his knowledge, the abundance and fertility of his ideas and his unwearied kindness." It was the combination of these qualities that made him so delightful a companion, whether at home or on holiday, and Adami often spoke in later years of the one or two vacations which he, Shipley and Robertson Smith spent together. They went to Venice together in the late summer of 1888, and from there Robertson Smith, finding Adami to be in some trouble, took him as a distraction to Florence, and for one memorable week lived with him over again the mediæval strifes and triumphs of that beautiful city.

It has seemed worth while to sketch this life at Christ's in some detail, for the effects upon Adami

were so lasting and happy. But of course his main energies were given to Professor Roy and the Pathological laboratory, and in 1889 an event occurred there which was the herald of a new interest. "In the summer of that year," writes Sir Arthur Shipley, "a mysterious disease broke out amongst the deer in the Marquis of Bristol's park at Ickworth. The pathological department at Cambridge was called in to investigate the outbreak. At first the authorities put it down as anthrax (at that time it was not known that deer could suffer from rabies), and I was not only startled but thoroughly alarmed when one evening Roy came to my rooms and said he was convinced that the disorder was rabies, and that his demonstrator, my closest College friend, had sliced his hand when cutting through the medulla of a deer's brain preparatory to removing that organ, the medulla oblongata being the most virulent seat of infection in rabies. Roy was also thoroughly alarmed. He had made my friend start for the Pasteur Institute by the night train. He now asked me to leave for Paris by the next train, and after informing myself of what the symptoms of the disorder were, I left."

Adami thus found himself a patient under Pasteur, and appeared at the Institute for a daily inoculation, after which he and Shipley, by silent consent ignoring the real object of their visit to Paris, spent the time either in the exhibition or in the Seine swimming baths. During the last few days of their stay, Adami was seized with symptoms such as Roy had described to Shipley, and these continued over their return journey to England and to Ashton, where a sleep of

thirty hours on end finally saw him restored to health. Shipley's anxiety during that journey may be well imagined. Adami characteristically set down the attack as a nervous condition due to auto-suggestion,[1] but he never doubted that his life had been saved by the prompt measures insisted upon by Roy. He was, of course, intensely interested in the work he had seen in progress at the Institute, and when in the following year he was elected to the John Lucas Walker Studentship, he went at once to Paris and settled down to work at the Institute under the directors, Roux, Metchnikoff and Pasteur, to all of whom he owed much, and the last of whom he ever regarded with deep affection. Metchnikoff was at this time at the height of his fame, and with a large body of investigators was applying his theory of phagocytosis to recently discovered facts on Inflammation in the new Institut Pasteur in the Rue Dutot. Adami found in this research and in his work on Immunity an exact and exacting stimulus for his own thought. He pursued under Metchnikoff a research upon the effects of rise of body temperature upon the progress of infective disease, and, as well, he translated a lecture of Metchnikoff's for the *British Medical Journal* of January 1891, and gathered up the general findings of those six memorable months in an article in the *Medical Chronicle*, 1891–92, "Recent Studies upon Immunity." To the end of his life Pasteur's signed photograph hung over his desk, and the Pasteur celebrations of 1923 in Paris and Strasbourg found

[1] See *Brit. Med. Journ.*, Obituary notice, Sir Humphry Rolleston, September 11th, 1926.

him a proud representative. One point in relation to the Studentship itself is worthy of note. In 1914 Adami himself wrote: "So great was my appreciation of the value of the Studentship, that as soon as the opportunity offered itself I persuaded the (McGill) University and its benefactors to establish two Fellowships with regulations identical with those of the John Lucas Walker Studentship, and thereby have succeeded in attracting to my laboratory a succession of workers who, in Montreal and elsewhere, have made their mark and come to occupy important positions."

Before his research was finished he was recalled to Cambridge, but not to Christ's or to his old work with Roy. On March 12th, 1891, he was elected to a Fellowship at Jesus, and made Director of Natural Science in the College, and he returned from Paris to take up these new tasks. If in 1915 he could say that the years spent at Christ's had been the happiest of his life, the short time at Jesus ranked very close. He soon felt himself part of the place, and found himself developing new qualities as he gave of his best towards it. It was at Jesus that he was first brought into tutorial touch with students, and that he first had the guidance of others in research. There is no doubt that his humour, his interest in other people, and his energy made a special contribution to the life not only of the Combination Room but of the College itself, and speedily won him many friends. In later years this happy association was never allowed to lapse; he was always on terms of warm intimacy with Dr. Morgan and with the present Master, Dr. Gray, and it was a source of great satisfaction to him that

before his work at Jesus was over his brother Leonard had become a student there. With Leonard's two sons the family connection was kept up till 1923.

So matters progressed until the following year. It is evident that within these last eighteen months Adami had been led to the consideration of work beyond Cambridge, but no special field had offered itself, and his thoughts as to his own future were simply dictated by the knowledge that wherever it might be placed, his life-work would be Pathology. His mind was in this state when in June of 1892 he received a letter from an old acquaintance of Owens College days then resident in Montreal. From him he learnt of the Professorship of Pathology at McGill which was to be filled that coming autumn, and through F. G. Finley was put into touch with the University authorities in Montreal. The Department of Pathology at McGill was all unmade, the very conditions of the Professorship were still unsettled, but Adami saw that it was a post which he could create, which would ask from him all his powers of initiative and energy as well as of scholarship, and it made a strong appeal from all these points of view to the spirit of adventure that was such a strong element in his character. By July he was seriously considering it, by the end of the month he had been asked to allow his name to stand, Foster had given his consent, and Mrs. Adami was summoning all her resolution and courage to let him go. Adami spent most of the summer at Jesus, with occasional visits to his mother, gradually bringing his mind to a step which, if taken, would inevitably carry him out of the

stream of English scientific life, and beyond the boundaries of his beloved Cambridge. In August he joined Shipley for a short holiday abroad, and Sir Charles Sherrington recalls meeting them at Brussels, and an excited discussion on the steps of their hotel about Adami's Canadian prospects. Early in September he went, at Foster's request, to take charge of a fellow-student, Walter Gardiner, who was ill with typhoid fever high up in the Swiss mountains, and it was there that on September 9th the telegram reached him informing him that he was appointed as Professor of Pathology to McGill. In later life he often looked back to that hot afternoon in Arolla, when he saw toiling up the narrow mountain path the telegraph girl who brought him the news, cabled to Ashton from Canada and forwarded from Ashton by his mother. He read the telegram and went back to his patient.

MONTREAL

ADAMI sailed for Canada on the *Parisian* on October 27th and he arrived in Montreal early in November 1892. He had been in close correspondence with the dean of the Medical Faculty of McGill since June, and knew in rough outline the scope and demands of his future work, but it was his first introduction to the American continent, and he was at once conscious, as are all those who cross the Atlantic for the first time, of new standards of size and distance and speed and of the many untasted possibilities that awaited him in a young country. With all this sense of novelty he was already too widely travelled to feel a stranger anywhere, and the welcome he received, typical in its warmth and kindness of the true hospitality of the Canadian people, made his first months easy and pleasant. Before leaving England he had made tentative arrangements for his sister Eva to come out and keep house for him, but until her arrival he shared rooms with two other members of the University staff. He was soon on terms of friendly intimacy with both, and he threw himself wholeheartedly into his new work.

There could scarcely be found a greater contrast than that between his old surroundings and his new life. Of the last twelve years of study, all of which had been passed in an academic atmosphere, eight had

been spent in Cambridge, in an established centre of scientific inquiry, where a band of famous teachers had stimulated research and where the ancient order of ceremony and of place, of history and tradition had surrounded him on every side. He found himself now pledged to a University young, modern, full of life and of energy, but with its intellectual history still unwritten, and its scientific tradition and position all unmade.

For in McGill, and in Canada generally, science was in its pioneer stage in 1892. Such men as Ramsay Wright and A. B. Macallum had carried forward biological research, and already W. H. Welch was laying the foundations of a famous pathological centre in Baltimore, but in the Dominion Pathology had not been provided for or regarded as an individual subject. It had been taught by men who were engaged in other work, either clinical or scientific. In McGill itself, a University of growing importance, and of recognized status, there had been before Adami's time a lecturer in Pathology, Wyatt Johnston, who, influenced himself by Pasteur and other European investigators, and alive to the importance of the study of comparative medicine, had urged the true place of Pathology and Bacteriology, but there had been as yet no organized effort to give Pathology its due place and equipment, either in McGill or in Canada as a whole. It was indeed virtually an untouched field, and Adami, both by temperament and training, was the person to tackle the problem. He felt that this was a great opportunity, and set himself to it with characteristic energy and resource.

"I shall have an uphill fight here," he writes; "uphill in this way, that everything remains to be done, and I shall have to interest people in my subject and myself in order to get sufficient funds to enlarge my department; still, the work to be done is good, the opening is great, and I hope with great anxiety to fulfil good things here."

The first few years were indeed to be uphill work, but every bit of it was enjoyable. His objects were, as he says in another note, "to build up a school" and "to work up comparative pathology." For this he must solicit help, and his first task was to interest people in his department and to raise sympathy and funds. His ideal of his own subject was never conceived on solely academic lines: he saw it always as a department of learning which was to be of the utmost practical use to the community at large, and would be of the greater value in proportion as its powers developed. This was the human interest, the wide and generous view, that from the first dominated his learning and his professional ambitions, and he never wavered from it.

Meantime he was faced with a new department, raw and ready and waiting, and the first and most obvious necessities were adequate laboratories and pathological equipment, which, indeed, were the conditions of his acceptance of the Professorship in his letters to the Board of Governors of the University. He made a stirring appeal for both in his inaugural lecture which he delivered in January 1893. After a summary of the main achievements of Lister and Pasteur and their results in practical medicine, he

drew a graphic picture of the future possibilities that lay before pathological research, and concluded with a demand for an extension to the building of the Medical School to house the department of medical science. He had been barely three months at McGill, yet he did not hesitate to speak plainly of the "miserable condition of the Medical Faculty building," and he concluded, "Surely the time has come that due opportunity shall be given to the student to study worthily a subject so rich in promise and fraught with such actual and prospective benefit to our race. Here in this the leading Medical School in the country it is that the start should be made."

Here was the need and the demand and the ideal. It was not long before the need was generously met. During the next twelve months, by the munificence of Sir Donald Smith (Lord Strathcona), the chair of Pathology was finally endowed, and by April 1893 plans were being considered for the erection of a wing to the medical building for the accommodation of Pathology, and for the new Pathological laboratories at the Royal Victoria Hospital to which Adami had been appointed Pathologist in May 1893. In their preparation Adami took a leading part, drawing out plans and designs which were accepted, and personally supervising the work of building. By the end of November 1893 he was able to write that he was settled in his new laboratories in the University, and that those at the Royal Victoria Hospital were to be opened almost at once by the Governor-General. It was here as well as at McGill proper that he developed and built up his school, and here that he

found throughout his time in Canada the rich field he needed for investigation. "We get," he wrote in 1904, "four post-mortems from every five deaths; there is not another hospital on this continent which can afford so excellent a showing." Twenty years later he wrote on the same subject: "Looking back over my own career as a pathologist, I see that every problem I attacked, every investigation I undertook originated in the post-mortem room, and from the wards of the hospital with which I was associated."

But he had not waited for these amenities to begin his real work. He had wished, as he said, "to build up a school." Under his hands this came into being. Pathology and Morbid Anatomy as taught by him drew round him a group of enthusiastic students who became fired with his own passion for research. Many of them were later to carry on this zeal into important posts throughout the American continent. His power of generalization, his wide grasp of principles, and his knowledge of historical background gave at once to the whole subject a new and fresh and arresting aspect, and his insistence on the duty of research, on personal experimental work, often repeated by others since, had then the freshness of a new enthusiasm. He did away with the old reliance on text-books and turned his students at once and for ever to original sources. His lectures were the lectures of a scholar, but they were never dull, they were delivered with vivacity, with humour, and with an originality and a wit and gesture which made the most difficult subjects enjoyable and comprehensible.

He illustrated as he spoke, sometimes making rapid blackboard drawings with both hands at the same time. His audience was always absorbed and held—drawn away from commonplace paths of learning and shown the delight of it for its own sake. "I had the privilege of being a member of his first class," writes Professor Nicholls, "and have not yet forgotten the impression produced by his first lecture. Delivered in an easy style, clear, and emphasizing only the salient points, the lecture was full of incident and of striking phrases, and constructed with a background of historical allusion which transformed what might easily have been a dull and commonplace recital into a vivid story of romance."

Not that he spurned the use of books—even text-books. Far from it. He had the true scholar's desire of making his pupils read for themselves, and one of his first tasks was to provide for the Medical Library, and to substitute for the dingy room then in use a suitable haven for books and readers. New quarters were found, new books and periodicals appeared, and the general stock was soon supplemented by the greater part of his own scientific library, which he placed freely at the disposal of students. So with Pathological specimens. Years before, when Osler had taught Pathology at McGill, he had made a collection of specimens for teaching purposes. Adami, who had been made director of the Medical Museum in 1893, saw in these specimens the nucleus of a Pathological Museum, and under his eager direction it was established and organized on sound lines. It became, in fact, a type and example for most of the

museums that arose in America and Canada in later years.

So much for the most obvious urgent needs of his school. He had thus set it in going order. In the twenty-two years in which he was to be in Montreal its progress and growth were always his first concern. It was from his own department that all else arose. Students were rapidly attracted to work under him, the Medical School expanded accordingly, and the McGill Pathological Laboratory became a reference house for practitioners and research workers all over the country. "I am sending you a specimen to-day." So begin hundreds of letters, and hundreds of replies thank him for the special interest he has shown in their case. Often enough these investigations ended in the doctor in question going to McGill and getting to know Adami, thereby laying the foundations of a friendship or a professional acquaintance that was maintained throughout the lives of both.

And meantime he was a busy member of Faculty, helping to run the *Montreal Medical Journal*, one of the active members of the Medico-Chirurgical Society, and forging links between the Hospital and University by his own appointment as Pathologist in the Royal Victoria Hospital, and by his own friendliness and willingness to serve either and both. The social life of the University, already expanding under a set of brilliant young professors, was stimulated by the founding in 1898 of the University Club, and in every side of its development Adami was to the fore. A smaller affair founded by himself and known as the Lister Club held fortnightly meetings for the discussion

of scientific problems, and it was here that his brilliant mind led and provoked inquiry, and stimulated research in an atmosphere that was free and unconventional, and that was not limited by the hours of the class-room or the laboratory. Professor Nicholls describes these gatherings as follows :—" The number of members was limited to twenty and the ' ins ' were greatly envied by the ' outs.' The proceedings were informal; the third member entering the room was the chairman for the evening, discussion was free and frank, the proceedings ended with beer, cheese and crackers."

There was as well his own home life. During the first couple of years after his arrival at McGill, Adami shared rooms with Professor Ruttan and Dr. O'Flaherty, and together they formed a congenial centre of friendly meetings, which soon led to a wide and easy acquaintance with Montreal society. He had suffered a great blow early in 1894 by the death of his sister Chrissie, who died in childbirth after barely a year of happy married life. The loss was specially hard to bear at such a distance from news and happenings at home, and he always deplored the early death which had deprived him of her loving confidence and companionship. It was partly this loss that drew him to thoughts of marriage and a home of his own, and in June of the same year, 1894, he married Miss Mary Stuart Cantlie of Montreal, who, through her mother, was intimately connected with Lord Strathcona and Lord Mountstephen, two great benefactors of the University. Their early married life began under the sunniest conditions, but Adami soon discovered that his wife was not strong,

and the greater part of their life together, until her death in 1916, was restricted and clouded by anxiety about her health. In the two children of this marriage, Isabel and Donald, Adami found from the first delight and pride, and in the last few years of his life, a second Donald, his daughter Isabel's son, was an added source of joy and interest.

These had been a busy two years, and it was not only in the University and at home that he had been occupied. His energy and willingness were already well known, and by 1895 he was laying the foundations of his public work, which, though it never encroached unduly upon his professional duties, was to occupy all his spare time henceforward, and towards the close of his life to dictate for him a big administrative position. His facility for public speaking, and the disregard of physical fatigue that was naturally his by reason of a sound constitution and excellent health, led him to undertake engagements which were far outside the range of McGill and which brought him into immediate touch with all parts of the country, and awakened interest everywhere in the Pathological department of his University. Following a visit to Nova Scotia in 1894 to investigate a certain cattle disease, he became bacteriologist to the Department of Agriculture, and many other appointments of a similar nature arose out of similar undertakings. He wrote home in 1895: "I am about as busy as I can be, finishing off the Pictou Cattle disease, making reports to the Government concerning pleuro-pneumonia, preparing a course of three lectures to be delivered in New York at the end of January,

doing my share of editing our *Montreal Medical Journal*, and preparing a volume of reports for the Pathological laboratory at the Royal Victoria Hospital."

This extract is worth quoting in as much as it refers to the first work he undertook in New York, the Middleton Goldsmith lectures on Inflammation. It was not, however, his first visit to New York or to the States, for within the first six months of his arrival in Montreal he had been invited by Osler, in a characteristic letter of friendly greeting, to attend the coming meeting of the Association of American Physicians at Washington and to allow himself to be nominated by him for membership of that body. Osler was already a name, Adami was longing to meet him, and wrote home to his mother in boyish excitement over the coming visit. It was even more delightful than he thought. He stayed with Osler, met Dr. Welch and was by them taken over the Johns Hopkins laboratories. From that visit, in the first year of his Canadian life, there sprang some of the happiest things in his professional life, his friendship with two great teachers, Welch and Osler, and his own connection with American medicine and medical research. When in 1909, Vol. II of *The Principles of Pathology* was published, with Adami and Nicholls of McGill as joint authors, it was "affectionately dedicated"

> "To *William A. Welch*, to whom Medical Research in America owes its deepest debt,"
> and to their predecessor, "*William Osler*, who initiated the teaching of Pathology at McGill University,"—

and it stood for Adami as a tribute to an admiration and an affection that were both lasting and profound. Thus his first relations with the United States were made under the most promising auspices. His next visit was in May 1897, when he delivered a paper on "Internal Secretion" at a gathering of leading physiologists and physicians at Washington. In the following winter the University of Cornell invited him to become its Professor of Pathology, the first of a series of invitations from American Universities. Though he never felt able to accept any of these, his relations with American medicine were always of the happiest, and it was a source of great pride in that in 1912 he was elected President of the Association of American Physicians.

It is clear from this that within the first five or six years of his arrival at McGill his place in Medical Science had become assured, and it was now to be confirmed by English as well as by American invitations. In 1897 Professor Roy, his old chief in Cambridge, had died, after a protracted illness of which Adami, as his demonstrator, had seen the early stages, and with which he had been kept in constant touch ever since through his cordial friendship with Mrs. Roy. The chair had been filled by A. A. Kanthack, but in 1898 he too was taken ill and was dead with tragic suddenness by the end of the year. It was then that the great opportunity of his life came to Adami. Allbutt and Foster had visited Canada some eighteen months previously, and had taken back their impressions of him and his work. It was urgently felt in Cambridge that Adami was the person

best fitted by aptitude, by training, and by his recent experience to build up a great Pathological centre, and both Sir Clifford Allbutt and Foster wrote assuring him that the chair was his if he would apply, in terms that were both affectionate and persuasive. There is no doubt that if he had done as he wished he would have accepted their suggestion. Cambridge was at the height of a scientific renaissance, and what more attractive for his pioneering powers and energy than to give of his best towards it, apart from the delight of the place itself, its ancient beauty, and the pleasure of being with his old friend Arthur Shipley? To the end of his life he looked back, though without regret, and still cherished a wonder as to whether he had done right to refuse. He accepted indeed after the offer had been through Sir Clifford Allbutt's insistence deferred for months in order to help his decision; but it was only a temporary acceptance. Much as he longed for Cambridge himself, he could not be assured that the change involved would be for the greatest health and happiness of those for whom he was responsible, and at the very last moment he cabled to Allbutt refusing to stand, and thus set aside what had admittedly been the great ambition of his life.

It was characteristic of him that once his decision had been made—however momentous—he spent no time in regrets, but rather turned with greater intensity to the work in hand. And of this there was plenty. During the winter of 1897, as we have seen, he had delivered in New York a course of lectures upon inflammation, following up his article on Inflammation

for Vol. I of Allbutt's *System of Medicine*, 1896, and it was out of these lectures that his book on Pathology first grew. By December 1898 he had settled down to the preliminary scheme, as many quotations from his correspondence would show. He refers to it even in his private letters; thus he writes to his mother in 1898: "The study of Cirrhosis has widened and widened till now I find two or three investigations before me and new fields opening up."

From that moment all his free time and most of his leisure were devoted to the book, and the reason for the delay in its appearance was that with every month that passed his spare time was decreasing, and again that as he wrote fresh fields came into view, and he felt bound to rewrite and even rewrite again in order to incorporate all he saw. Five years later in 1903 he wrote to Rolleston:

"Trying to get down and to state clearly the principles of Pathology, I find myself burrowing deeper and deeper, and for the last six months have been hammering away at the Pathology of the Cell, and at the Physiology of Nucleus and Cytoplasm, preparatory to the chapter upon 'Immunity and Cell Products.' Honestly I funk that chapter upon Immunity. It seems almost impossible to describe the best of modern observations upon Cytolysis, Complements, Amboceptors, etc. in clear language and in such a way that the student may have a perception of what it all means. However, I must face it, though I fear it will take another year before I have that section to my satisfaction."

It is not surprising that so detailed and so thorough

a work should take time, and it is clear that Adami's publishers, eager for the production of a book for which they knew there was urgent demand, were at times a little distressed and agitated at the deliberation of his methods. A friendly correspondence between them, protests on his side, persuasion on theirs, marks the stages of the book. At last, in the spring of 1906, he was granted part of a Sabbatical year, and leaving the McGill and Royal Victoria laboratories in the capable hands of his junior colleagues, Nicholls, Klotz and John McCrae, he packed his papers, crossed to Europe, and settled down in Marburg in peace and quiet to complete the book. He had chosen Marburg as a University town that was off the beaten track of research workers, and which yet possessed a good reference library, and also because Ludwig Aschoff was Professor of Pathology there and Adami was anxious to know him. Here at last he was free to write as many hours as he liked (and take as little exercise as he would), undisturbed, and chapter after chapter was finished and sent over to Klotz to be typed. It was then read, corrected and returned for a second copy. Once having begun, his progress was swift and assured, for his subject was clear in his mind, and two typists were required, the writing being maintained at a pace that made it often almost illegible. At the final retyping three copies were made, and distributed to different places—to the University, to his own home, and to the Royal Victoria Hospital—as a precaution against fire. It was a busy six months, for in odd moments he was collaborating with Aschoff in a study of myelin degeneration, and uniting with

him in writing articles on the significance of myelin bodies in tissues, and showing the important part played by cholesterol in these (cf. *Proceedings Royal Society*, London, 1906, s. B, lxxviii, 359–68). In spite of these small side excursions, however, he returned to Montreal at the beginning of the autumn term of 1906 with the bulk of his book written. All that remained was for him to gather up the strands of one or two unfinished chapters—in particular those on tumours and congenital anomalies. These were rapidly completed, and by the spring the book was ready for the Press, when Providence designed one last obstacle as a test of patience. Early in April the buildings of the Engineering Faculty at McGill were attacked by fire, and ten days later, on April 16th, fire broke out in the Medical Building, two-thirds of it were destroyed, and the Pathological Department, with his Library and Museum, were wrecked. The loss to the University was very great, to the Faculty irreparable, and to Adami perhaps more serious than to anyone, for the greater part of his fine private library was stored in the building as well as all the accumulated stores of specimens and illustrations, etc. for his book, the gathered treasures of years. The story may be found in his own words in the Preface to Vol. I of *The Principles of Pathology*.

"My manuscript had been completed and all save a few chapters sent to my publishers, when in 1907 the greater part of the Medical Building at McGill University was burned to the ground, and with it my library, the chapters in question, and the illustrations I had made or gradually collected over many years

for the purposes of the book. It has been impossible to reproduce many of these illustrations and I have had to fall back upon illustrations from many sources. . . . So also the loss of my library has made it impossible for me to turn to the familiar shelves and from them fill in a very large number of references."

These temperate statements indicate in some way the losses that had to be made good; they give no idea of the work involved. With some justifiable groans but with extraordinary patience he set himself to gather a fresh collection of drawings, designs, illustrations, to rewrite the concluding chapters, to send the book to the publishers, and—to re-create the library. For this he wrote everywhere for reprints and copies of books and papers. Universities all over the world made generous and immediate response, and in Cambridge a representative committee of his friends, led by the Regius Professor of Physic, was formed to collect and forward papers, books, reprints, etc. for McGill. With such assistance the loss to the Faculty was to some extent repaired, but to the end of his life Adami could remember his feelings of misery and dismay when he heard the news, and he would somewhat wistfully recount the scientific treasures that had been lost to him and his profession.

In the summer of 1908 the book appeared. Its success was immediate and assured in America and Europe, and marked a new era in the teaching of Pathology. With its elaboration of general principles, its background of wide reading and of long personal acquaintance with scientific method, and its insistence on a closer union between Physiology and Pathology,

it was at once a witness to his own width and conception of thought, to his scholarly and original mind, and to the influence of his training under Foster and other great teachers. To this last he alludes in the closing words of his preface: "It has been my good fortune and my privilege as a student to come under the influence, and that intimately, of not a few men who have been masters of their particular subjects, and who, diverse it may be in their gifts, have each possessed that intangible something that we recognize as greatness, men who have inevitably moulded my thought—Milnes Marshall and Francis Maitland Balfour, Michael Foster, Rudolph Heidenhain, Julius Dreschfeld and Charles Smart Roy, Emile Roux and Elie Metchnikoff. To them and to their teaching and inspiration is due whatever of virtue these pages may possess." The very large first edition of the book was rapidly absorbed and he was soon busy in the preparation of the second edition. In 1909 Volume II was produced with the assistance of Dr. A. G. Nicholls, and subsequent editions were published in 1910 and 1911. Following the success of this comprehensive work, Adami and John Macrae brought out in 1912 a *Text-Book of Pathology*, in which the argument and lines of the previous volumes were gathered up and made accessible to the general student. "To provide and familiarize the student with the plain and working drawings of our science"—so that afterwards he might put facts and details into their proper places within the whole scheme—this was the aim and the reason for the *Text-Book*.

Meantime, these years had not been devoted entirely

to the writing of books. Looking at them in retrospect, it would seem rather that the books were the product of his leisure hours, so wide and so various had been his other interests and activities. As we have seen, it had not taken long for Canada to discover his facility in public speaking, and he was soon in great demand not only for lectures on his own subject in other Universities, but also for addressing Medical Societies on questions of Public Health, for speaking to graduates, for opening Medical Institutions, for laying foundation stones, etc. To each and all of these he brought a spirit of enthusiasm and friendliness and of support that made him friends wherever he went and won sympathy and interest for every cause he advanced.

Such activities as this led him to the last ten years before the War, and saw him entered upon a crusade of Public Health and Public Welfare that used all his powers and made the days always too short. The first of these was one which brought him into immediate contact with every section of the community, and for which he was well qualified to be director and guide—the Canadian Association for the Prevention of Tuberculosis. This Association had been founded in 1900 at a meeting of the Canadian Medical Association held at Ottawa, and three years later the Montreal branch of it was established, with Adami from the first as its leading spirit. In Montreal the disease was rapidly becoming a serious menace, and the League set itself to instruct the public by a campaign of education, by the distribution of leaflets, by sermons from city pulpits, and by the use of a willing daily

Press, as to how the danger might be averted by rational and cleanly ways of living, and as to the possibilities of cure. This campaign, maintained with energy during the next six years, culminated in the great Exhibition of 1908 in Montreal, and as a direct result of this, in 1909, the Royal Edward Institute was presented to the city by a well-known patriotic family. This was a building in the centre of the city where a dispensary was run on the lines of Calmette at Lille. With this institution Adami was closely connected from the beginning, first as Chairman of the Board of Management, and later as President until 1917, when, owing to prolonged absence in England, he felt obliged to resign. He saw in such a dispensary, as he said in his Presidential Speech to the Association in 1909, "a centre which could work hand in hand with the City Board of Health on the one hand and with the bodies of public opinion and the charitable on the other," and such it proved itself to be. He was himself present at the big Conference in Edinburgh in 1910, and there inspected and was inspired by Sir Robert Philip's great dispensary, and he returned to Canada more keen than ever to deal with the urgent problem of the distribution of infectious cases outside the hospital, which in England were under the charge of poor law institutions and municipal authorities. He used all his influence and that of his Committee with provincial authorities and the governing bodies of hospitals to this end, and the results, though not immediate on all hands, appeared in due course, and the mortality in Montreal and in the whole Province was enormously decreased.

One thing led to another. An immediate result of the Tuberculosis crusade of 1908 was the City Improvement League that was founded in the following year, of which Adami was the English President. This League, in which French and English, Protestant and Catholic worked together (and which represented no special class, and was even averse to legislation unless it had the whole-hearted support of every section), acted as a central clearing house for all bodies working for the general good of the city, and dealt with such things as city planning, water supply, the general improvement in cleanliness and order of the streets, and the renting problem. And on every side of it Adami was to the fore, speaking and writing. He had all his life an extraordinary power of getting hold of people, and of inspiring them to work for a common purpose, and he did so then. The consequence was that he and his Committee were soon embarked upon an even larger question, that of Child Welfare, which had been one of his great concerns for years past. Montreal was adding 40,000 a year to her population, a poorer class of immigrants was crowding into the city, the congestion in the lower quarters was on the increase and slums were forming. Under such conditions infantile mortality was steadily increasing, and public opinion had to be awakened and informed. This was the purpose of the Child Welfare Exhibition of 1912 in Montreal, the first of its kind held in Canada. The task of its promoters was unique and difficult, for Montreal possessed two sections of population, French and English, both of which had not merely to be taken into account but to be actively

interested if the Exhibition was to be a success. As English President, Adami threw into this task all his powers of energy and friendliness, of tact and persuasion, and the result was soon assured. At the beginning large sums were guaranteed by prominent citizens. In every case these were handed over to the Exhibition at the end as a tribute of admiration to its success. All sections of the city were drawn in and were soon working together—differences of race and creed forgotten in a common ideal—and it was this happy co-operation of different classes and nationalities that made the triumph and the unique and lasting success of the Exhibition.

These were national and civic interests. His absorption in them did not mean that his scientific work had fallen off, or that his interest in medical problems was less acute, and one of the proofs of this is his work during those years on the subject of Medical Education. Even as an undergraduate the history of Medical Education had been a fascinating field of study at odd moments, and he continued this in Canada alongside his other activities, working on the life histories of famous physicians in the past and then turning to the prospects of Medical Education as a whole both in regard to the University medical student and to the busy general practitioner.

One of the reasons which led him to support a five-year course so strongly, and which drew him to urge it in the States (it was adopted in McGill in 1907), was that he saw it as advancing the "scientific foundations" of a "medical education." "During the past twenty-five years medicine has been raised from an

art to a science, so, in order to practise it duly, the student must have a training in science and acquire the scientific spirit." So speaks the Pathologist, but he saw the educational problem from the side of practical medicine also, and conceived the true ideal of a Medical Faculty to be "to turn out well-trained and capable practitioners, its main responsibility being to develop the general practitioner and not the specialist." In days when such things were rare in America, although even then the practice in Toronto and McGill, he demanded the British tradition of clinical training, the day-to-day observation of the patient, and to this end a complete co-operation between the Medical School and the Hospital. These seem elementary things in Great Britain to-day, but they were not so in America when Adami was speaking. In his opinion, as he explained to students, the best hospital teaching was one in which the student learned not merely to treat disease but also to treat the patient. His expressed ideal was, in fact, an all-round medical course with a scientific background, and with a wide practical clinical experience in which the student would develop all his powers of observation, diagnosis, tact, humour, and above all sympathy with his fellow-men. Here, as the reader will readily see, were the scholar and the man of affairs, the scientist and the doctor walking hand in hand.

He had plenty of chances to air these views, for he was beset with invitations to speak all over the Dominion. He was Chairman of a representative Committee on Venereal Disease engaged upon an inquiry which he continued in England during the

War, and in this connection was soon deep in Eugenics. He conducted an investigation into suspected cases of cholera on S.S. *Royal George*, and as Bacteriologist to the Department of Agriculture he made continual and constant explorations into veterinary medicine. Everywhere he maintained that preventive medicine was to be the "medicine of to-morrow," everywhere he urged *Research* as a practical agent against disease, and in an address delivered at the College of Physicians and Surgeons, Columbia, N.Y., in 1909, he took as his subject "Pathological Discovery and its bearing upon Preventive Medicine," and illustrated it by showing the results of Medical Research in tuberculosis, malaria and yellow fever. His reputation in Pathology, and his acknowledged faculty of envisaging its application to practical medicine, brought him in 1911 the invitation to become Director of the Cancer Institute at Columbia University, New York. Although for several reasons he did not see his way to accept, he was attracted by the offer, and two years later, in 1913, in a speech to the New York Academy of Medicine, he sketched out his ideas of what such an Institute should be. Ten years later, in Liverpool, he was to be throwing all his spare energy into Professor Blair Bell's Cancer Research campaign. His plans did not alter. At both periods he expressed the view that on the basis of a knowledge of the normal cell and its biology and function would be built a knowledge of the cancer cell. In both he urges research on the prevention and cure of cancer alongside research upon its cause. "The ideal Institute for Cancer Research must approach the solution of

the problem by investigation into the nature of the process, into the nature of normal cell growth, into the life history of malignant growths, and so into the cause or causes of neoplasia. It is this course of action that promises most for the benefit of humanity." And further on again he asks that the hospital should be an integral part of the Institute, so that the research might never become academic or remote from practical needs.

It was perhaps partly because of his consistent endeavour to link Pathology with clinical medicine that he was returned as President of the Association of American Physicians. In 1912 he presided at the meeting of the Association held in Atlantic City, and his Presidential address is that of a pioneer. A central building such as Burlington House in London for the preservation of archives, a lectureship annually delivered on some notable advance in medicine, a medal to be given annually for an outstanding piece of research—these are suggestions made by him for the increase in dignity and weight of the Association.

Perhaps he spoke with an added confidence knowing that he was among friends who might easily have been colleagues. This same year had seen him approached from yet another big American University, and he had found it difficult to refuse, knowing the possibility of development which lay behind it, which made so stirring an appeal to his vigorous mind. But he did refuse, and reaffirmed his decision to stay in Montreal by a fresh plunge into works of every kind.

Open dismay had been expressed at McGill at the

rumour of his departure, and the students' Medical Society sent a unanimous signed petition begging him to change his mind. He was by this made aware of the feeling which existed for him amongst his students, and of the place he had come to hold in the affections of the University. In the twenty years he had spent there, it was above all things his power of personal contact, his wide charity, and his comradeship with all fellow-workers that had made for him his unique position. His students knew he could be approached, and the eager learner and the researcher were always sure of his help. For the dullard there was always a cheery smile and a word. Over his frugal lunch of tea and biscuits, which he took in the departmental library of the College, he welcomed many a young student with his difficulties and his problems, and gave him the needed encouragement and advice. He gave them freely of a rich and flavoured worldly wisdom, lightened by humour, and he taught them to walk humbly in matters scientific and to preserve an open mind—to look for progress always, but to seek it within the limitations of law and the natural order. They would find if they persevered that the ripest flowers of experience were within these limitations. To the junior staff who were interested in research he gave the use of his rooms till their own were provided and fully equipped, and to each and all in personal intercourse and in his lectures he gave the example of a wide culture and a mind alive to the wealth of learning in the past and to the promise of progress in the future. With all this there was no undue solemnity or aloofness. He was at their service

as a friend as well as counsellor and director, and they were assured of his interest not only in their work but in themselves and their personal concerns. Such relationships as these were not lightly broken, even under the separation of time and place, and a stream of letters from old students pursued him all his life. They wrote from everywhere for advice—a house surgeon from Singapore, a pathologist from Australia—certain of his sympathy and affection, while with his most distinguished pupils who occupied chairs in Canada and elsewhere, such as Klotz and Nicholls, he always kept up a scientific correspondence. This readiness to help was extended not only to students, but to everyone with whom he came in contact. A man who has met him once at a lunch party in Vancouver writes asking about the medical curriculum, and sends his son to college and to medicine on the strength of the answer he receives. Another consults him on an incipient love affair, "I am certain you will understand"; another, a teacher of physiology in an obscure country college, asks for a detailed scheme for the arrangement of his winter's work; and an agitated student in Iowa, worried over an examination paper, writes for and receives Ehrlich's side-chain theory of Immunity in full with references. Such are only scattered and typical examples of literally hundreds of requests which came to him, and which, answered as they were with detailed personal care, brought him affection and regard all over the Dominion and beyond. And as the years went on, and his students went out with his message to important posts, far and near, his influence was felt more and

more widely throughout the American continent, and his office at McGill became a congenial meeting-place for visitors from the United States as well as from Canada.

There were as well his interests and ties in England, which in all the years he spent in Montreal were never dropped. Adami often lamented somewhat ruefully his shortcomings and procrastinations as a correspondent to his relations and private friends, but he never failed in letters to his mother, and by them, and by her long and tender and detailed replies, he kept up with the doings of a large family—with the illnesses and recoveries of aunts and uncles, and with the daily happenings, small events as well as large. Until his mother's death in 1904 the old house at Ashton was still the family centre, and between his journeys to see her Adami plied his mother with long accounts of his doings and wanderings, speeches and writings, pouring out to her the details of his Medical and Pathological work which must have often been mystifying enough to her, but to which she duly replies with shrewd comment or question. All the while he acted as her supernumerary medical adviser (if at a distance of some 3000 miles), and she in return relied upon him with a special devotion and confidence. After her death his European vacations were mostly spent in attending Congresses or in wanderings in Cathedral cities on the Continent, and the stream of letters between Ashton and Montreal, playful, tender, humorous, grave and gay, ceases.

So much for his more intimate English ties. There

were, of course, other links. Throughout his time in Canada he kept in close touch with scientific movements in Europe, partly by his own constant vacations spent in England, partly by acting as host to many distinguished scientific visitors to Canada—many of whom were his old friends—such as Allbutt, Foster, Sherrington, Rolleston, and in part by a brilliant and informing correspondence with Arthur Shipley. The latter had remained at Cambridge, and in 1910 had been elected Master of Christ's, an honour which gave Adami equal delight. Both were great travellers, both had a love of social life and the doings of the great world, both had the gifts of the born raconteur, and both had a connoisseur's taste for rare and beautiful things. It had always been Shipley's hope that Adami would return to Cambridge, or at least to England, to occupy some important Pathological chair, and when this did not happen they bridged the distance with letters which, if not long, were full of amusing anecdote, of social and academic life, of erudite learning on many subjects, of extraordinary diversity of interest. European politics, Cambridge gossip of a cheerful and simple kind, scientific discovery, these hold first place and give way only to the artistic interests they both shared—on Shipley's side usually some treasure in furniture that he was acquiring for the Master's Lodge, on Adami's some abstruse point in heraldry, or an account of an excursion into some new range of pottery or china. One request, scarcely of an artistic nature, in a letter from Shipley in October 1914, testifies to a long and sturdy friendship. He wrote: "There is a terrible shortage of leeches in

this country. I don't think there are more than twelve in London—these are only secondhand. I wonder if you could get a consignment of about three or four thousand and send them to me. I don't quite know how they will come." Unfortunately details of the arrival of the consignment are not forthcoming!

The last two years before the War were crowded for Adami. He was busy in his own School, watching and nursing its development, and he was occupied as well in many outside affairs. For the meeting of the Association of American Physicians in May 1912, to which reference has already been made, he had gathered a widely representative list of papers from all parts of America. He gave a long series of addresses in various cities, speeches to Graduation Classes and to Medical Societies, while in July of the same year his *Text-Book* appeared. Such might be the lot of a popular well-known Professor in any growing University, but Adami added dozens of extra engagements to days that were already filled. He was sitting on the Public Parks Commission, helping in the Duchess of Connaught's appeal to raise the Victorian Order of Nurses, and in spare moments writing articles on such things as the Radium Springs in British Columbia, acting as scientific adviser for a new filter machine, and journeying about to receive honorary degrees. He paid a brief visit to England in the summer of 1912 and took an active part in the International Conference on Post-Graduate education in London, but was back again in Montreal in September, and settled down to a busy winter of preparing the

Text-Book for a second edition. The spring of 1913 brought him the delight of another visit from Osler to Montreal, and Adami helped to organize a great banquet given in his honour by the Medico-Chirugical Club, and himself composed the menu, every course and toast of which were adorned with a passage from Sir Thomas Browne's *Religio Medici*, and on the back of which were his own delicate drawings of the arms of the Universities of Oxford and McGill. Osler sent him a typical note afterwards: "I did not half thank you enough for that Bruninian gem. It is really A 1, and will be a great addition to my collection."

Of his Medical addresses at this period, perhaps the most important was one which he gave before the Medical Society of the City and County of Denver on "Chronic Intestinal Stasis." This address, delivered in the autumn of 1913, was published in the *British Medical Journal* of January 24th, 1914, and provoked considerable discussion in the Medical Press on both sides of the Atlantic. It is of particular interest because in it he refers to problems in Pathology which had occupied his thoughts over a long period, in particular that of inflammatory fibrosis, and that of sub-infection and the lesions for which it is responsible. In this address also there is a paragraph of a personal kind which reveals so strikingly his manner and caution in regard to all scientific problems that it has seemed best to reproduce it in full.

"I have known what it is in the course of my work to have revealed itself to me what appeared to be a great principle, to find that principle applying

itself to and elucidating every phase of my subject, until all my thoughts throughout the day and in the watches of the night hovered around and constantly returned to this one principle and its application, to the virtual exclusion of everything else; until frankly I became frightened at myself, and with a determined effort gave up that line of investigation, turning to routine University work. I had known others, workers of higher calibre than myself, who had become similarly so filled with their work and its possibilities that temporarily, it seemed to me, their reason had become somewhat unbalanced. And here is the point: it was about this very matter of intestinal derangements that I thought I saw light. To me also it appeared that they were the cause of many grave conditions—in fact of so many and so diverse that, as I say, I feared to continue further, lest if I were not obsessed the world nevertheless would so regard me. That was fourteen years ago, and in the meantime I have largely permitted this particular field to lie fallow."

The address is only one of many in which he brought pathological study into immediate contact with clinical medicine and clinical surgery. He was always thus looking from the windows of the Pathological laboratory to the wide fields of practical medicine outside, and it is perhaps in this special regard that his influence was most weighty and fruitful. Indeed this is explicitly stated in the terms of the award to him in 1914 of the Fothergillian Gold Medal of the Medical Society of London, which were as follows: "for your work on Pathology in its application to practical medicine

and surgery." Coming as they did on what proved to be the last year of his Professorship at McGill, these words were a fitting summing-up of his work there—what his aim had been and what he had achieved.

LONDON

As we look back at the months immediately preceding the outbreak of the War, it is difficult to recreate their old peaceful activity, and still more difficult to realize that, so near to the great upheaval that was to divide the life of everyone who shared in it into "before" and "after," ordinary life could go on unchecked by premonition, unhampered and unclouded. Yet, as we know, this was the case with most people in England, and in Canada the life of George Adami was no exception. To the very edge of the War he was living the old life, yet when once it had broken out he was absorbed, swept into its current, and the work it brought him carried him away from Canada never to return.

During the winter of 1913, Adami was busy with the familiar round, both in and outside Montreal and McGill. His laboratory was doing first-class work under a team of men who were during the next few years in Europe to bring a repute to Canadian pathological science, and with John McCrae he was devoting his spare time to a revision of his *Text-Book on Pathology*. Requests for his advice and presence on the boards of learned societies in the United States and the Dominion kept his free time more than occupied, and by the spring he was looking forward to a holiday in Europe which he and his daughter Isabel had been

planning for months. On May 7th they sailed by the S.S. *Tunisian* from Montreal, Isabel taking with her as travelling companion her friend Dorothy Martin.

Adami had been appointed a Canadian delegate to the Imperial Health Conference and Exhibition in London on May 18th–21st, and the departure from Canada had been arranged to this end, and for the presentation to him of the Fothergillian Gold Medal of the Medical Society of London on the evening of May 18th. The ice, however, was late that year in the Gulf of the St. Lawrence, the boat was delayed in arriving at Liverpool, and he was only able to keep his evening engagement by a whirlwind rush, changing his clothes in the boat train to town, and driving from Euston to the House of the Medical Society in Chandos Street, Cambridge Square.

The weeks that followed were happy and crowded with varied delights. The breath of the coming storm was abroad, but it was not yet enough to alter the plans of ordinary people, and the original programme was carried through—visits to friends in the country, a glimpse at the season's gaieties in London and at Ascot, and three visits to Cambridge. There were May week festivities, there was Dorothy Goulty, whom he regarded as his god-daughter, to see at Newnham, there was a big dinner at Christ's on June 23rd, and, memorable event to an old pupil of Michael Foster's, the opening of the new Physiological Department on June 9th by Prince Arthur of Connaught, and the banquet held the same evening in Trinity College as a feast of celebration. By July the travellers were in France wandering through the

Château country to Provence. Everyone has some city which bears for him a special significance of memory or beauty, and which he takes as his own, and such was Avignon to Adami. Years before, on an earlier visit with Shipley, he had been captivated by the strange beauty of the place set on the hill above the rushing Rhone, and he had made notes of what he would like to paint and draw. Now, in 1914, though there was only time for a passing visit, he returned to find his early fascination deepened, and eight years later, in 1922, when he was once again able to go to Avignon, he searched for and found all the special view-points and treasures of these previous visits, and then sat absorbed for hours, sketching, from the road below Villeneuve, the stretch of water, the broken bridge, the ruined arch, and, beyond, the piled yellow fortress. From Provence he and his party travelled through Switzerland to Milan, and from there, by July 31st, to Venice. Here it was that he was brought face to face with the coming storm. Already the city was a changed and sombre place. Most of the foreign visitors had left, for a whole week the German population of hotel-keepers and waiters had been returning home for mobilization, and by the Sunday every available Italian soldier had been drafted to the Austrian frontier. In this deserted city they were held up for over a fortnight, chafing at the delay. At last accommodation was obtained on board the S.S. *Cretic* sailing from Genoa, and after a crowded but unadventurous journey of ten days at sea, the party finally arrived in London, having put themselves *au fait* with events by sitting up all night in the train

from Liverpool to London devouring old *Times*. With most of his friends already pledged to war work it was hard for his adventurous spirit to face leaving England, but his immediate duty was, of course, in Canada, and by September 12th he had sailed in the *Megantic* for Montreal, though not before he had left an important suggestion to medical history behind him. In the Introduction to Volume I of *Medical Services, General History of the War*, Major-General MacPherson writes as follows :

> " . . . It is significant that the general desire in the medical world for a medical history of the War in accessible form was first brought to notice by Professor Adami, the Professor of Pathology and Bacteriology in the McGill University, Montreal, in a letter dated the 25th September, 1914, to Sir William Osler, the Regius Professor of Medicine at Oxford University. Professor Adami, who afterwards took part in the War with the rank of colonel in the Canadian Army Medical Corps, pointed out in his letter that in none of its wars had Great Britain thoroughly worked up its medical history. He suggested the formation of a Committee with assistants in each base hospital to take charge of all case sheets, to secure fuller details of cases which promised to be of special importance, to preserve materials for a museum, and to make the necessary preparations for obtaining full records for a medical and surgical history of the War.

> "His letter was forwarded by Sir William Osler to the Director-General of the Army Medical Service, and on the 11th November, 1914, Surgeon-General Sir Alfred Keogh, who had then been reappointed to act as Director-General at the War Office, selected Lieut.-Colonel, then Capt. F. S. Brereton, an officer who had retired from the Royal Army Medical Corps, and had subsequently devoted himself to literary work, to undertake the duty of preparing material for a medical history of the War. . . ."

Osler's reply to his letter reached him in Montreal. It found him already busy. By October 2nd he had entered the Canadian Service as a private in the McGill University Battalion, and was presently parading and drilling in Fletcher's Fields, and a little later entering the Canadian Army Medical Corps by examination. To his mind it was the quickest way of placing himself at the service of his country, but in after years he would confess that he had found it a novel task to sit and cram for an examination after twenty years as a Professor. He was, as he described it, "lucky enough to pass," and after that his way was clear. He served as an original member on the Administrative Staff of No. 3 General Hospital (McGill) which was being organized and staffed for duty overseas, and in March 1915 he was gazetted Lieutenant-Colonel. A month later his cherished hopes of serving in England were realized. On April 10th, 1915, he left Canada for London, where he was to work with one brief interval for the

next four years on the staff of the Director of Medical Services, Canadians.

From the first day he was happy and absorbed. He was fifty-two when the War broke out, but he was only thirty-two in his longing to have a share in it, and the fact that he had chanced to be in England at the outbreak of hostilities had made it all the harder to return to Canada and wait for his job. Now he had got it, he threw himself into it with the same energy with which over twenty years before he had launched his new work in Montreal. "It is a complete change," he wrote, "but that is the joy of it." "My great comfort in this war is that I have been able to do something, and have fitted in a hole where I am kept busy all the time. Possibly you can understand how pleasant that is to a man who, being over age, might have been turned down."

It was indeed a change. After twenty-two years of teaching, of supervising students, of lecturing, of organizing civic movements, he found himself plunged into the routine of an office life, sitting at a desk day after day, and, as he said, "covering himself with the red tape" of Army regulations. "To my exceeding great joy I have found myself hard at work from the very moment of my reporting to General Carleton Jones," he writes. "Here I am in the office from morning to night, sitting at my desk getting in returns, collecting statistics about typhoid, cerebro-spinal meningitis, venereal disease, and so on, among our Canadian troops, writing polite letters to British hospitals which fail to make correct returns of Canadian patients admitted into, transferred from, and

remaining in their wards during the week ending at 9 a.m. Friday; compiling weekly statistical tables, writing letters to the War Office and occasionally drafting letters for them, in fact leading the 'life clerical' day after day from ten till seven, eight, nine, or it may be ten o'clock, and for an odd two or three hours each Sunday—I have only been out of London four Sundays since May—but, as I say, absolutely enjoying it all." The zest, the enthusiasm, which these words convey is the very same with which he had written to his mother thirty years ago about his new work in Cambridge.

This was his own description of his new life, written after some six months' experience, and it provides the rough and cheerful outline of his day's work. A little added explanation is perhaps necessary. He had been sent out from Canada as Medical Historical Recorder, and from the first his object was the production of a Medical History of the War for the Canadian Expeditionary Force. The office work that he described bore, therefore, a twofold aspect. Its statistics were the necessary day-to-day classification of medical details of the Dominion forces, and the accurate recording of such for immediate use; they were also the foundations and the basis for the Medical History. For either of these purposes original documents were a first necessity, and the War diaries of the medical units were his first concern. Monthly copies of the diaries of the officer in charge of each Canadian Medical unit were abstracted and transcribed by him, and letters and extra reports from the same source received similar treatment, while at

his suggestion an extensive series of plans and drawings of Canadian hospitals both in England and France were made by a Canadian black-and-white artist, Captain Mathews, for eventual deposit with the Dominion archivist at Ottawa.

But the diaries were only the first step, and could only provide half the picture. A precise estimate of the diseases affecting the Canadian Expeditionary Force demanded accurate returns of Canadian casualties, and these could only be obtained by means of accurate returns as to the names, hospitals and dates of admission and discharge of Canadian patients, and the conditions of disease from which they were suffering. Adami, in his capacity of Assistant Directer of Medical Services in charge of Army Medical Service 2, was in charge of all matters connected with hospitalization from the side of the patient, and he was therefore responsible for the statistics of incidence of disease in the Canadian Expeditionary Force, for weekly returns of officers, N.C.O.'s and men who were wounded, and for a monthly analysis of casualties of different orders affecting the Dominion forces in Europe—analyses which, as he explained in a summary of this work, "were to constitute the bases upon which the full statistics of the campaign would eventually be built." Added to this general scheme there were the reports of individual patients in hospitals, correspondence regarding the transfer of such patients from British to Canadian hospitals, and the hospital care of officers and the offers of convalescent homes; while for the scrutiny and correction of Canadian casualty lists, a card-index system was

adopted which rapidly ran to 100–170 thousand individuals, entered and classified according to the disease as well as according to name.

Yet it is obvious that a record based on statistics alone would be but a dull and lifeless affair, and for any intelligent survey of the medical units first-hand observation was a necessity. To this end he was at once put into touch with the various Canadian hospitals in England, and he spent three weeks in France in August and September 1915, the whole of March 1916, and paid a third visit over the same ground in May two years later. On these tours all the Base Hospitals, Casualty Clearing Stations, and Field Ambulances were visited, and a practical experience was gained of the conditions in each. It will be remembered that the first Canadian contingent arrived in England in October 1914, and after a winter on Salisbury Plain, where they learnt the meaning of English mud, the 1st Canadian Division were transferred to France in the following February, and that in May of that year Shorncliffe instead of Salisbury Plain became the reserve and training camp for Canadian troops in England. Within three weeks of the troops' arrival in England, the 1st Canadian Hospital had been sent to France, and others followed in quick succession. When Adami visited France in August 1915, therefore, it was to find the Canadian Army Medical Service in full swing. He kept a graphic daily diary, writing up each night every detail of the tour, from the embarking at Folkestone to the return some three weeks later at Boulogne on a hospital ship. On his first visit he found No. 1 Canadian General in the Golf Hotel at

Le Touquet, and after an inspection of that he received orders to proceed to Nieppe to inspect the Canadian Units at the front, Nieppe being then the Canadian Headquarters and only 2500 yards behind the trenches. From there he saw the work of an advanced dressing-station, of the Canadian Field Artillery, built of log huts; from there again he went to the 3rd Field Artillery near Neuve Église, just shelled by the Prussians, and further again through Bailleul to Poperinghe, where "traces of the second battle of Ypres were everywhere"; to Mirville, No. C. Mobile Laboratory; to the Casualty Clearing Station at Aire; to Le Treport, No. 2 Canadian General Hospital; to Dieppe and Rouen. The last visit before leaving for England was perhaps the most memorable, for it was to Camiers, three miles out of Étaples on the Boulogne road, where was No. 3 McGill General Hospital, with Colonel Birkett in charge, and staffed with his McGill friends, John McCrae among the number. The other two tours of inspection in 1916 and 1918 were similar in object and in method.

The diaries are interesting not only as illustrations of his war work, but as revelations of his own interests and preferences, and his own turn of mind. On such an expedition many men would have driven from hospital to hospital writing up their diary, and so absorbed in the work in hand that all else was of no account. It was not so with Adami. He misses nothing of artistic and historic interest. The car is stopped at S. Omer for lunch, and in a brief half-hour a study is made of the twelfth-century marble pave-

ments in the church; at Aire he adds drawings of the Perpendicular architecture and a special note to remind him to compare the proportions of these buildings with those of the English collegiate churches after 1400. He shows the artist's sense of grouping and of line—soldiers having a midday bathe in a wayside stream seen as the car flashes past are " Murillo-like figures " —" wish I could have stopped to paint them." Yet only two lines further down the page he has arrived at the unit for inspection, and has forgotten everything else.

It was from these visits to the Canadian National Units on the French Front that he gained the vivid impressions of the life there—the colour and the first-hand observations that were essential to a history of the Canadian Army Medical Corps. The material for the book was thus gathered in 1915 and 1916, but owing to his own subsequent absence for six months in Canada, and to the difficulties of publication in war-time, it was not published till 1918. Though entitled the *War Story of the C.A.M.C.*, it was much more than that. It was, in fact, a history of the activities of the 1st Canadian contingent from its assembling at Valcartier in 1914 until September 1915, when it was joined by the 2nd Division, and it provides a graphic story of the second battle of Ypres and the engagements at Festubert, Givenchy and Ploegsteert: it also traces the organization of the Canadian Army Medical Corps before the War, and it concludes with a short sketch of the hospital units of the First Contingent. It was a modest but a readable little book, and it will be seen that it was the immediate and

tangible fruit both of the office routine and of his visits to the Front.[1]

The first eighteen months of his time in London was primarily occupied with these activities, but there were other interests. He was still a pathologist, and he showed it by the friendly encouraging watch he kept on the Canadian laboratories at the Front, and in particular of the work done under Major C. Lea at the 3rd Canadian General Hospital at Boulogne. In a lecture delivered in February 1919 at the Royal Institution, entitled " Medicine and the War," he said, " Some of the best medical research has been done by the men most busy over the routine pathological work of the army laboratories." He was keenly alive to the special opportunity the War afforded for obtaining pathological material, and one of his most continuous efforts was the collection of pathological specimens for the Canadian museums. He arranged with Sir Arthur Keith for a room in the Royal College of Surgeons, where were gathered all the pathological specimens from the Front for Canadian exhibit, and he did all he could to encourage the collection of medical war material from the Front after the Armistice, always rather disturbed by the deliberate methods of the War Office on matters which seemed to him of such essential and urgent importance. The valuable collection of war material now in the Medical Museum of McGill owes its existence to his determined efforts. Another

[1] *War Story of the Canadian Army Medical Corps*, by J. G. Adami (temp. Col. C.A.M.C.), A.D.M.S. in charge of Records, Office of Director-General Medical Services, O.M.F.C. Vol. I. The First Contingent (to the autumn of 1915). Published for the Canadian War Records Office by Colour Ltd., 1918.

matter he took up and wrote upon in those two years was the subject of Pensions.

At the beginning of October 1916 he was recalled to Montreal by the serious illness of his wife; he obtained leave of absence on October 4th and left at once. She died on December 8th. Personal affairs required his presence in Canada for three months longer, and finding some spare time, he offered his services and was attached to the office of the Director of Medical Services at Canadian Army Headquarters in Ottawa. Here he spent January and February 1917, dealing with tables of physical standards, war diaries, treatment of infectious diseases among troops, typhoid carriers, pension problems, and the usual routine of an Army Medical Office. After a brief visit to Montreal, where he delivered a valedictory address to "accelerated" War graduates of McGill on February 17th, he left for England, and on March 22nd was back again in his old quarters at 86 Strand. This office moved on May 22nd to Pembroke House, Oxford Street, and it was there that he spent his days till the spring of 1919.

The next few months were fully occupied, for in addition to the ordinary day's work, and the Canadian Army Medical Corps history, he was busy writing the Croonian Lectures, which he delivered at the Royal College of Physicians in June 1917, under the title of "Adaptation and Disease."[1] In 1918 these four lectures formed the basis of a book, *Medical Contributions to the Study of Evolution*, in which he collected papers, lectures and addresses on the same subject

[1] *Medical Contributions to the Study of Evolution.* London, Duckworth & Co., 1919.

stretching over a long period of years. The subject was one which had been first brought to his mind by his work on Immunity. The immediate reason for his choice of subject was, as he explained in the introduction, largely determined by the fact that the War had precluded him from making for these lectures any special effort of pathological research, and that he did not think the time was yet ripe to make use of the vast masses of material bearing upon incidence of disease in the Army which had occupied all his attention during the preceding three years. "Inevitably," he writes, "I was led to fall back upon previous studies, to sum up the conclusions regarding Adaptation which as a student of Pathology I had reached gradually in the years before the War." The Croonian Lectures, therefore, embody studies in a subject to which he had given much thought. Their main thesis is to draw the attention of Biologists to the evidence which Bacteriology and Immunity supply in regard to the inheritance of acquired characters. He held that studies in these subjects showed conclusively that changes in environment evoked new function, and that such new function and adaptation are transmitted to new generations. He produced a mass of evidence that unicellular organisms may develop new properties by direct acquirement, and, on the other hand, that the hosts of parasitic organisms evolve by adaptation new defensive properties which are transmissible to offspring. He further argued that the inheritance of acquired defects had been demonstrated by pathological experimentation. The following extract from the third Lecture was a summary of his conclusions :

> "The results of medical research strongly support Darwin's earlier contention that congenital variation is to be attributed to the action or influence of changed conditions upon the parental body, and through it upon the reproductive germs. At the same time they indicate the existence of a limited group of cases in which the Lamarckian principle is exemplified, namely, that of identical inheritance of conditions acquired by the parent. Thus at length, after long years of vague wandering in the wilderness with not a little heavy fighting, we have, if mixed metaphors be permitted, conquered our Vimy Ridge, and although for a time held up, can indulge in a Pisgah view, and see when and how the next advance is to be made."

These were the most important occupations outside his own work, but they were not the only ones. In those first eighteen months in England he had easily found his way back into the widest of medical interests, and he returned in 1917 to carry on with these in every spare moment. His working day was ordinarily long and full, but all his life he had found his great recreation and refreshment in turning to work of some other kind rather than in rest or simple relaxation, and this held good now. A six days' holiday at Ventnor was spent in composing a contribution on Intestinal Stasis for Sir Arbuthnot Lane's new book, and odd hours in the train were seized for the correction of proofs. His facility in easy and forceful lecturing had become known, and he was in constant demand at the Cana-

dian camps, and would often go down to Orpington, Netley, or Shorncliffe to address either officers or men. One lecture delivered at Folkestone to No. 2 Mobile Laboratory on "Records, Statistics and Standard Methods" may be taken as an example. And coming back from such a lecture late at night he would settle down to work at Pembroke House and complete some article he had on hand, perhaps for the *Maple Leaf* or his own Canadian Army Medical Corps book, or correct proofs for the *Canadian Bulletin of the C.A.M.C.*, a periodical which owed much to him, and to which he and six others contributed a notable article in June 1918 entitled "Combined Inquiry into the Presence of Diphtheria and Diphtheroid Bacilli in Wounds." In June 1917 he was appointed Chairman of a Committee under the Medical Research Council for the Standardisation of Pathological Methods. Under this title an active group of experts was soon at work, and in March 1918 he wrote as follows: "Our first report upon the Wassermann reaction; our next two reports will be upon the detection of spirochætes and upon gonorrhœa. Then we shall take up the typhoid coli group." It was the work of this Committee that at once stimulated and satisfied his pathological side, but as always he could not be content to commit his conclusions to paper only. They must have some practical application. The lecture given before the Royal Institute of Public Health on January 9th, 1919, on "The Prevention and Arrest of Venereal Disease in the Army," and published afterwards as "The Policy of the Ostrich," is a spirited and courageous attack upon

a current evil both in its application to the army and to ordinary social life.

For as in Canada, so now in England, the cause of Public Health was always of absorbing interest to him. Inheritance and its problems, the transmission of acquired characteristics, the suppression of vice and crime, these had for long been questions of first importance, and during 1918 and early 1919 he was constantly speaking, lecturing and writing on one or other aspect of these questions, whether it was lecturing to the Eugenics Education Society or addressing National Baby Week Council on " Ante-natal and Neo-natal Factors in Infant Mortality," or making a technical statement on the Physical Census to the Medical Society of London.

Thus far he was the medical man and the pathologist even throughout the life of an Army officer in War-time. Two other interests worthy of mention show that his help was valued as an educationist as well. In November 1917 a Syndicate was appointed at Cambridge " to consider the means of promoting educational collaboration with the Universities of the Empire and Foreign Universities," and in December Adami was elected a member. His diary shows that throughout 1918 he was constantly in Cambridge on this work, and it was not surprising that he was asked to act also upon the Imperial Education Committee which arranged the Imperial Education Conference held on June 11th and 12th, 1919, the object of which was to bring together for the discussion of educational problems representatives of British and Foreign and Dominion Universities then in England.

These four years had been happy and full. He had thrown himself into fresh work, he had found it develop in his hands, he had added to it other quests of absorbing interest, adjusting his long years of experience in a new country to the fresh demands of England's crisis. Meantime he had taken up his old friendships. Osler was at Oxford, Shipley was Master of Christ's. In his odd free moments he would run down for an hour with one or other of these, while in London he had constant meetings with Rolleston. A succession of Canadian visitors, friends and acquaintances passed through his office, and even during his busiest weeks there was a continual interchange of cheerful hospitality. At one lunch in particular given in 1918 he entertained members of the Medical Faculty of McGill University then serving in the War, no less than nine members being present. He had a bedroom at 3 Hertford Street in rooms which he had known since Cambridge days, and usually lunched at the Savile Club near by; but for the rest he was in his office, all day and every day and very often through the week-ends. If he took an afternoon off it was to visit some gallery, to attend some picture exhibition or to drop in at Sotheby's or Christie's and watch the sale. For in England, during these four years, the pursuit of china and pottery, which had been his great hobby in Canada, had given way before his new interest in Old Master Drawings, and it was during this time that he found most of his treasures. A photograph of his desk at Pembroke House shows his papers and telephone below a Correggio, and *Collectors' Marks* by Louis Fagan was always in his

pocket. He grew to love London whether in sunshine or in bad weather, but his visits to Cambridge generally spent with Shipley at the Master's Lodge were a welcome break; and in her ancient solemn beauty he found his old refreshment deepened. Thus with this varied life he was busy and occupied till early in 1919. He was lecturing, he was gathering material for Volume II on the Canadian Army Medical Corps, and as Chairman of the Programme Sub-Committee he was busy preparing for the meeting of the British Medical Association held in April of that year, which aimed at drawing together medical representatives from all parts of the Empire.

For himself it is clear he had no plans. He had all his life had a fine disregard for the future for himself and an almost fatalistic conviction that what was meant for him would appear in good time. Meantime, so soon as his work in London was completed, there was every reason to suppose that he would return to Montreal for the October session. But Fate had other plans for him, and he fell in with her suggestions. These four years in England had served to strengthen all his ties at home, while in Montreal his home had been broken up by his wife's death. The old professional routine had been interrupted, and all his energies and capacities for public work, initiated in Montreal, had found full scope and development in England, while his relations with Education in general had been strengthened and increased. The University of Liverpool was needing a Vice-Chancellor. Osler, Shipley and Sherrington warmly approved of his name being put forward for election. On Friday, May

23rd, Mr. Hugh Rathbone, President of the Council, asked his permission to do this; on May 29th he went with him to Liverpool and met next day at his house, Oakwood, Mossley Hill, members of the Council and Senate on the Selection Committee. There was no doubt about the unanimity of feeling on that Committee, and June 3rd, 1919, he was formally elected Vice-Chancellor of the University of Liverpool.

LIVERPOOL

THE summer of 1919 often gave Adami a strange sense of repetition in its event and order, as he looked back and forward, and even a spectator must be impressed with the close likeness between his first big appointment and his last. Once again, as in the summer of 1892, he was waiting to cross the Atlantic to his new work, once again he was to be uprooted from a settled routine and sent upon a fresh path, and once again his new days were to be spent within a University that was as yet only in its early youth. As he sorted his papers in London, as he crossed to Canada, and at McGill took leave of his laboratories and of the hospitals, and said farewell to his many friends in Montreal and the Dominion, as he deliberately closed down for ever his official work as a Pathologist, the comparison and the likeness were often driven forcibly upon his thoughts. But not with retrospection or regret. A new field had opened to view, and his mind pursued its possibilities with an enthusiasm which, if reinforced with the experience of maturity, was as fresh at fifty-seven as it had been at thirty. He was returning to England, to Lancashire, which had been his early home, to people whose ways and whose outlook he knew and understood. He was to live in a great city which had intimate connections with the Dominion of Canada, and above all he

was to guide the fortunes of a University in whose history he had for years taken more than a passing interest, and whose position in the world of letters, of science and of medicine was already assured. Such was the prospect, such was the appeal. He sailed from Montreal on the *Corsican* on August 23rd, 1919, reached Liverpool on September 9th and began his new life.

The next few weeks—before his first session began—were fully occupied, not only with making himself known in Liverpool and the University circle, but in settling his own possessions and affairs, and in getting into his house. In this his choice had been guided by a determination that his home should be a centre, in so far as might be, for the University and the city, and a convenient meeting-place for all who would use it. He was fortunate in finding 9 Croxteth Road, a house of fine spaciousness and dignified proportions admirably suited both for living in and for entertaining, and within easy reach of his work and of the city. He had bought the house before he left for Canada, but it was still in the hands of painters and decorators when he returned, and it was not until October 6th that he finally moved in and slept there. During these first few weeks, while he was staying with friends near by, he spent his leisure hours in arranging the treasures he had collected throughout his life, and very soon the house bore the impress of his catholic and discriminating taste. In the long green drawing-room, with its white pillars and windows at either end, "The Adoration of Buddha Amida" (942–1017) hung over one white mantelpiece, and on the opposite walls were a Constable and an early Corot. A Rousseau land-

scape hung over the other fireplace and was guarded by drawings of Cambiaso and Giulio Romano, two of the Italian masters whose lines had given him special joy in the last few years of collecting. His theory was, that provided a picture or an object gave genuine pleasure for its form, line or colour, it had a right to preservation, and that beautiful objects whatever their age or period would always blend happily together, and in this new home he put his theories into practice. In the library at the back of the house, Italian drawings hung side by side with early English prints, and a small statue of St. Radegund, the patron saint of Jesus College, Cambridge, looked down from a corner shelf upon shelves of Moorcroft china. Thus the house emerged, and in all this he was not alone, for to his immense satisfaction his daughter Isabel had come to live with him, and to help him to entertain. She was with him until her marriage in October 1921. Six months later Adami himself was married again, to Marie, elder daughter of the Rev. Thomas and Mrs. Wilkinson, then of Litherland Vicarage, now of Knowsley Vicarage, Prescot. No. 9, as it was familiarly known, became more and more of a delight to Adami, with the sunshine pouring through its big windows, with its quiet little stretch of green turf behind, and with the cheerful gatherings with which it was soon associated. He constantly said that he felt it to be "a happy house," and even for holidays he always left it with regret. Except for vacations and enforced sick leave he was not willingly out of it, and he only went from it during the last fortnight of his life, and that largely for the sake of others. So

upon October 1st his own affairs were established and he settled down to his work at the University. If among his friends there were those who regretted his break with Pathology and his scientific interests, they were soon to learn that in reality the move to Liverpool was in accordance with his own development and capacity, and the problems to be dealt with and his way of dealing with them were in direct line of descent with the whole of his previous history.

They were problems peculiar to Liverpool in their particular details and conditions, but common in their general bearing to every University at the end of the War, and experienced in their most acute form by the young civic Universities which had hardly yet come of age, and which now found themselves faced with difficulties of which institutions twice their age might well be shy. No one had envisaged these problems more accurately for Liverpool than Sir Alfred Dale, Adami's predecessor. In the long fifteen years of his Principalship and Vice-Chancellorship before 1914 he had laid firmly the foundations of administration by his patience and wisdom, by his untiring industry and care, and by his detailed knowledge of every movement in the development of the growing University. During the five years of the War he had watched these foundations stand the test and weather the storm, but before the Armistice he knew that the old conditions were gone for ever. He foresaw—and predicted in his report of 1917–18—the rising tide of students that would soon cover the old landmarks, and realized that their needs would not be those of the pre-war students, who turned for the most part to

teaching, but those of men who were "looking forward to active careers in a wider world." He saw that this meant "a new combination of subjects both in arts and science," and he realized that in the future much of the strength of the University would come from a closer and closer association between it and the outside world. Considering these questions and many others with his characteristic unselfishness for all that concerned the truest welfare of the University, Dale determined that the framing of schemes for its changed and changing life should be in fresh hands, and resigned as from July 1919. Adami was his immediate successor, and he and Dale, so different in temperament, in training, and in outlook, proved themselves to be in the history of the University the exact and necessary complements of each other. Adami's public administrative work in Canada and his Army work in London had endowed him with the outlook of the statesman and the public servant as well as that of the student and the professor, and to these critical post-war conditions, so different from that of the earlier University routine, he brought his wide experience of the world and affairs. It was the combination of these qualities, taken together with his own temperament, his enthusiasms and his international reputation, that so specially fitted him to develop on its new lines the work Dale had begun.

The conditions which existed when Adami formally took over his Vice-Chancellorship were wholly unprecedented and marked the beginning of a new era in the history of the University. When the War broke out the number of full-time students had been 888, and

during its progress this had been decreased by close upon 300. By the summer after the Armistice the numbers had risen to 1522, and the session of 1919–20 began with 2428 students, rising to 2605, of which over a thousand were ex-service men. Such figures provide ample explanation of the changed conditions of affairs, and the emergency measures that were employed to cope with the influx, the division and the sub-division of classes and the re-allocation of apparatus, the erection of army huts in the quadrangle for Chemistry and Electrical Engineering, were indications of the most pressing and urgent problems which faced the new Vice-Chancellor. Far-reaching changes in administration, intricate developments within the constitution inevitable from the date when a young institution of learning had to face the adjustments necessary to a fresh age and a post-war world—these are still in process of solution. Such developments only emerged gradually, and they were not the immediate problems in 1919. Accommodation and equipment for this trebled community, a proportionate increase of staff, the founding and endowment of new chairs, the raising of salaries in accordance with a post-war scale of living—these were the needs and the responsibilities which made the re-endowment of the University on a generous scale an immediate and a pressing necessity, and within two months of his appointment, at a meeting of the University Court held on November 29th, 1919, Adami had outlined the appeal for a million pounds which was to be formally launched the following spring. After alluding to the skilful management and direction of the

University finance ("there is not another University in the land that can at present produce such a Balance Sheet as that presented to the Court this day"), he sketched the future scope of the University within the local area, and gave a rough outline of its immediate needs: additional buildings and equipment for the departments of Inorganic and Organic Chemistry, endowment of the University library, the establishment of the School of Social Science on a secure basis, and the provision of additional playing-fields and a gymnasium, and increased hostel accommodation for both men and women. With the exception of the Chair of Italian and the Gymnasium, every one of these needs were met and provided for in due course.

In the New Year the Appeal was launched. On Adami's urgent advice the services of an Appeal Director were engaged, for adequate advertisement of the scheme in Liverpool and the surrounding area, but much of the success of the undertaking was due to the efforts of the officers of Council, Mr. Hugh Rathbone, the late Mr. J. W. Alsop, Mr. Sydney Jones, Mr. Charles Booth, and others who met almost every day in the Appeal Office in Moorfields to talk over plans. Adami himself went about everywhere, speaking, pleading, begging, making the needs of the University generally intelligible in Liverpool and outside, and the generous response that was soon forthcoming in gifts and bequests, ranging from the munificent gifts of great ship-owners, city firms and banks to the smaller donations of private individuals, was due in large measure to his infectious cheerfulness and optimism and to the impression his personality had

made in the short time he had held office. During the summer of 1920 uncertainties as to Income Tax and Excess Profits Duty as well as the possibility of a protracted coal strike had a crippling effect upon the Appeal, and in the end the amount realized was about £360,000. But this result, though short of Adami's original demand, did not measure the force or value of the effort. The position, the claims, the needs of the University had been set forth in an arresting way, and an atmosphere of friendly interest in its fortunes had been created. The foundations of his special work had been laid.

Five difficult years lay ahead. It was clear by 1921 that the post-war expansion was to be a permanent one—the old order was a thing of the past. The Appeal had secured endowment for certain of the most pressing needs, but the means of the University fell far below its rapid growth, and in spite of an increase in the Government grant, of the raising of the City Council grant from £10,000 to £15,000, and of an increase in students' fees by one-third, the pressure of economy lay heavily through these years on all departments of University life. Adami's solution for these problems was to obtain adequate support for the University from every part of the area it served, and the whole work of his Vice-Chancellorship was governed by one idea—to make the University known among all classes of the community, and to stimulate on its behalf in South-West Lancashire not merely respect due to a learned institution, but co-operating affection for a common possession and pride in a common heritage. Conversely, and in return, the

University, typified by himself, was out to serve. The opening of the October term of 1919 was delayed three days in anticipation of the threatened railway strike. His diary records that his first official act was to write to the Lord Mayor, placing the personnel and resources of the University at the disposal of the city in case of need.

It was his own eagerness to serve, the whole-hearted surrender of himself to the interests of the University, and the simplicity with which he did it, that drew forth a friendly response on all hands, and made him within a few short months a welcome and honoured member of the city's life. It also multiplied his list of engagements. The early days provide an astonishing record of varied activities. The life of a Vice-Chancellor in the first year after assuming office is always crowded, but Adami added to the ordinary work of his office and interview hours, and to the usual outside invitations, a hundred other claims, and his secretaries often found it difficult to fit everything in and to keep pace with his promises. If his presence at a gathering would help the University, or secure support for a good cause, he accepted the invitation without a thought of his own preferences or the fatigue involved, and very soon even Sundays were almost as full as week-days. He distributed Prizes, he opened Bazaars, he took the chair for League of Nations Unions in obscure country districts, he addressed Sunday Brotherhoods and Citizenship gatherings, he presided at swimming matches and boxing contests, at Missionary and Church Choir Festivals. "I am just now engaged," he wrote one

Sunday afternoon, " in getting my thoughts into order on the following activities for this coming week—the Primitive Methodists on Adult Education, the toast of the School at Birkenhead, a welcome to local Mayors at the University and the British Broadcasting Company's address on ' Hospitals for All.' I want to get them off my chest and then on to the Cambridge sermon." To every one of these he carried the same simplicity, the same width of outlook, and the sense of humour which could transform the dullest platform atmosphere into a cheerful family gathering. As he did not know the meaning of aloofness, his audiences were at once at home with him, and felt him to be one of themselves, representing the University but entering with sympathetic inquiry into their own particular problems. It was no conventional lip sympathy, but the true expression of the heart, and it stimulated, invigorated and encouraged everywhere he went. Many letters tell the same story : " Your visit last (month) (week) was such a help to us that we have done so and so. We feel sure you would like to know." In a house in which he was a frequent visitor, a servant was heard to say, " When Dr. Adami comes in at the door, everything seems possible."

So here in Liverpool he was displaying already that vital interest in others which had been such a special quality throughout his life. Everyone was aware of it directly they came into contact with him—his interest in them, in their doings, their hopes, their plans. In youth this had found its expression in the support and advice demanded of him by his own family, in student days it is seen in the relationships

he maintained in a large circle of friends both old and young for whom no service was too much, now in later life among colleagues and friends the same thing went on. He was really anxious for everyone round him to succeed and to be happy. His sturdy encouragement was a source of strength to many in face of new work and fresh responsibilities, and as he always looked upon his own life as an adventure, so he looked upon the lives of his friends, and often revealed to other people possibilities within themselves of which, till then, they had known nothing. He thought first of others, and only wished them to be as happy as he was himself.

So he went about, and not only within the boundaries of Liverpool. In the city he spoke and wrote constantly in support of the proposition of the Penny Rate System. Beyond the city gates, in neighbouring areas and in municipalities within the district, he welcomed every chance of urging University obligations, and he soon made opportunities for going even further afield. It was an essential part of his plan to bring outside areas into living touch with the University and to increase their practical support. He travelled to Blackpool and to Barrow, to Colwyn Bay and to the Isle of Man. Often three or four hours' journey would be made for an hour's talk. He spoke in Southport, in Warrington, he was a frequent visitor to Chester and in the Wirral. He drew all these places within the University domain, and gave them a share in its concerns and successes, its needs and hopes. These activities were not without effect. During the session 1924–25 a County Borough renewed

its grant of £100 which had lapsed for several years, the Cheshire County Council made a substantial increase in its contribution, and during 1925–26, this was raised to £1000 per annum, while the Lancashire County Council doubled its grant of £2000. The subject was one to which Adami devoted much thought, for upon its acceptance depended, in his view, much of the future possibility of development, as well as meeting of the current financial needs, and within the last few days of his life he was thinking out plans for a Conference of local authorities, Mayors and Town Clerks which, summoned under the joint auspices of the Chancellor and the Lord Mayor, actually met some two months after his death, on October 19th, 1926, in the Town Hall.

There was also the other side of the picture, his interest in Liverpool itself. Perhaps this is best seen in his dinner speeches and in the addresses given to learned societies. He had a wholesome detestation of the advertisement of a great city for commercial purposes alone, but he had an equally strong feeling for local and civic patriotism, if such proposed to set forward ideals of beauty, of intellectual activity, of dignity and order whether in architecture, in city administration or in social affairs. So he associated himself with the traditions of Liverpool, revived the dreams that William Roscoe had for her, and looking forward saw the possibility of even finer things in the future. His aim was the development of a literary, artistic and critical temper within Liverpool city life. "Commerce alone will not give Liverpool greatness, the things of the spirit and the intellect may be pursued

along with the things of the mart and the counting-house. . . . For the honour and glory of Liverpool it is for us to attract here the foremost thinkers and teachers, to possess noble buildings and libraries and laboratories that are the best and most adequate of their day and generation, to create, in fact, a society of the best in all departments of human activity." His ambition was to encourage this spirit in Liverpool by education, and to stimulate the sense of communal interest and that of pride in the history of great institutions of the past, and to show how they should be preserved for modern use and developed for the mutual good of the whole community. These were his aspirations, frequently expressed. He always concluded with some practical suggestion or advice. He would have liked to have seen some definite links forged between the University and the learned societies of the city, and to the Literary and Philosophical Society he outlined a scheme by which original contributions to letters or science could be communicated and published, and the literary, scientific and artistic societies co-ordinated.

These were some of the main interests outside the University precincts. Within them his chief interests were bound up with the students. Adami was not a born Committee man, and the minor details of University administration never really attracted or held him. He constantly found himself looking beyond what he knew was necessary business to some objective that seemed to him of far greater importance —the human personal requirements of the individual, and of these the students claimed his first concern.

From the night of his welcome among them in 1919 he was full of their affairs. He saw life from their angle, understood their problems and their plans, and only lamented that he saw so little of them. If he was apt sometimes to err on the side of tolerance and leniency, it was largely because he felt that experience would be their best teacher and that life itself would correct the impetuosities of youth better than he could. For their various problems, whether those of the ex-service men in his early months in Liverpool, or later on those of the ordinary undergraduate, he had always time to spare; but while always ready to help, he was specially anxious to encourage among them a sturdy independence, and he made a careful distinction between the allotting of Scholarships and of Maintenance Grants. The Rankin Fund—a sum of £4000 made over to him in 1921 by a well-known generous benefactor—was administered by him with the proviso that its loan should be repaid later on by the recipients. He owned that he was never happier than when he was among the students, and one of his treasured possessions was a photograph of himself standing well sprinkled with flour on a lorry, surrounded by the student mob after presenting Sister Jane to the victorious Faculty in one of the Panto Day Collections. On their part his reputation in the world outside, the distinction and vigour of his personality, and the dignity which he gave to any occasion to which they invited him, combined with his simplicity and humour, were qualities which won him their affectionate regard, and as time went on they learnt what an intimate interest he had in all their concerns whether general

or personal, and of the schemes for their benefit which he had at heart.

One of his ambitions was to raise the standard of athletics and to make definite provision for the physical training of the Undergraduate. His experiences in the War of C 3 men had left him profoundly impressed with the necessity for building up the physical stability of the nation, and in University students he saw the nucleus for such a reconstruction. He spent his first Saturday afternoon watching the football at Calderstones, and the spacious grounds at Wyncote with the pavilion and Club house and sloping garden, formally opened on July 1st, 1922, was a continual pride to him; though his constant regret was the small number of students who then took advantage of it in sports or games. He admitted that this was largely due to the long distances students were obliged to travel to and from their homes, which left them so little time for regular athletics, but it was precisely for this reason that he asked for a gymnasium, where, as part of their University routine and easily accessible to their work, students could keep fit by daily exercise. The subject was never long out of his mind. His first speech to the University Club on October 24th, 1918, was devoted to it, and six years later, at the Annual Conference of the Universities of Great Britain and Ireland in 1925, he delivered a paper upon it. An all-round training of mind and body was what he asked for, a training which should encourage the normal and healthy development of all the powers and capacities of the student and raise the standard of physical fitness all over the country. He would have liked a physical

examination at the students' entrance, and compulsory physical exercise for the first two years under a trained supervisor. He owned that he was not preaching from his own experience. As an undergraduate his afternoons had been spent in the laboratory or the hospital instead of on the athletics ground, but for this reason he was the more eager to convince others of the urgency of the whole question. He spoke last upon this subject within six weeks of his death, on July 15th, 1926, at Cambridge, at the Third Congress of the Universities of the Empire. Those who heard his speech will remember the vigour and emphasis he gave to his subject, and his regret, frankly expressed, that he had never engaged himself in what he now knew to be an essential part of healthy University life.

Much the same reasons explain his interest in Hostels. He would have liked to see every one of his students living in University halls of residence, released from the lodging-house existence that was forced upon so many, isolated from the home activities which occupied their spare hours, and set free for the few short years of the University life to work and play undisturbed by outside distractions. The problem of hostel accommodation for men was in its acute stage when Adami became Vice-Chancellor, with three separate groups of students living in Ullet Road, Croxteth Road and Aigburth, and although during his period of office these conditions were improved by the purchase of four additional houses in Ullet Road and the subsequent abandonment of the two other centres, the problem was not solved during his

lifetime. His last two reports, of 1924 and 1925, show the overwhelming importance he attached to the whole question. With the women he saw more of his wishes fulfilled, and the four large houses linked up into a common institution with adequate accommodation for staff and students and commissariat. He watched and recorded the expansions of University Hall for Women with pride and satisfaction, and early in 1926 was able to see the new buildings and refectory in their final stages of completion.

Adami's ambitions were therefore to encourage among students an all-round fitness, and at the same time to develop so far as might be the distinguishing capacities and powers of the individual. He carried these ideas into public work. He wrote constantly upon such subjects as "Racial Diseases," "Inheritance," "Acquired Characters," and elaborated during these years more than once his scheme outlined before the Medical Society of London in 1918, in a paper entitled "The Physical Census," the main idea of which he worked out in 1921 for the Eugenics Society under the title of "The True Aristocracy." Thus, as will be seen, his wide scientific and medical knowledge affected everything he touched, and the special part he played during his six years' work on the Consultative Committee was partly due to the fact that the subjects upon which the Committee was deliberating were those in which his human and scientific experience could find full scope and expression. "Differentiation of Curricula between the Sexes in Secondary Schools," "Psychological Tests of Educable Capacity," these were the titles of

the first two reports of the Committee's work between 1920 and 1925, and the third report, " The Education of the Adolescent," has similarly both a medical and an educational significance. However busy he was he would never miss these London gatherings, and after a crowded day at the University, and perhaps a dinner and a public meeting, he might have been seen going down in the tram to Edge Hill, where he would pick up a sleeper for London in time for the morning session of the Committee. Throughout these years his mind was continually exercised with these problems, gradually joining up these educational discoveries with the scientific experience of his life, and after the publication of the Report on Psychological Tests he made use of many Prize-givings to enlarge upon its points to parents and scholars. His address to the Imperial Education Conference on July 2nd, 1923, was a considered statement on the whole question of vocational tests.

Outside Liverpool itself this Committee was his main occupation, but it was inevitable that with his scientific reputation he should often be invited elsewhere to deliver papers on medical subjects. His most notable contribution to medical literature during this time was, perhaps, his paper on Influenza in the official *History of the War* (Medical Services, Pathology, 1923). During his first year at Liverpool, in 1920, he found time to act as Chairman of the section of Bacteriology at the Brussels Conference, and to deliver the opening address on October 1st of that year at the opening of St. Mary's Hospital Medical School, and subsequent years show a series of speeches to

Public Health Conferences and Medical Societies all over the country. He was always progressive and fearless in his suggestions, hopeful as to what might be achieved if people would only be willing to co-operate. Thus at Brussels he asked for an international standardization of bacteriological methods, at St. Mary's he sketched the scope and use of a fully-equipped Institute of Pathology, and at Bristol in 1926, in his address as Chairman of the Pathology section at the Institute of Public Health, he made use of his own experience as Vice-Chancellor of a civic University to stress the importance of the alliance between University and Municipality if the best results of research in bacteriology and hygiene were to be attained. The only broadcasting speech he delivered was in 1925 on " Hospitals for All," in which he drew an arresting picture of the present hospital system in England, altered and enlarged so as to include upper and middle class patients.

By these means he kept up his medical interests and connections outside the University of Liverpool. Within it he watched the work of the Medical Faculty and its various activities, and the Dental School in particular owed much to his steady encouragement. Of the medical research that was then in progress, perhaps the most important inquiry was that of Professor Blair Bell on " The use of Colloidal Lead in the treatment of Cancer." Adami threw into this venture all his sympathy and his practical support. Although, with the caution of the true scientific worker, he never expressed certainty as to final cure, he was profoundly convinced of the soundness of the

deductions on which the research was based, and of the methods employed, and it drew his allegiance as an attempt to discover a cure for the disease rather than as a search after the cause or causes of it. He soon saw that if the work was to have freedom for development it must have assured financial support, and it was on his invitation that a little group of wealthy Liverpool citizens met together on January 15th, 1923, and pledged a sum of about £4000 for a period of years, making possible the creation of a co-ordinated research group drawn from men of high scientific standing in the University. Adami gave his support to the scheme on the public platform and in the medical Press, the thought of it was never long absent from his mind, and had he lived and been in good health he had determined to devote the remainder of his life after the expiration of his period as Vice-Chancellor to promoting the research. Almost his last public act, when he was already very ill, was to journey to Nottingham on July 23rd, 1926, and there deliver in place of Professor Blair Bell, who was unable to be present, the paper in the Section of Medicine which had been arranged for the annual meeting of the British Medical Association, entitled "The Nature of Malignant Neoplasia and the Treatment of the Disease with Lead: a Symposium by Members of the Staff of the Liverpool Medical Research Organization."

This account of his medical activities might perhaps sound as if he had been unduly absorbed by them. The variety and width of his interests forbade anything of the kind. He was equally the father of every

member of the Senate. "From first to last," says a University authority, "he never showed the slightest desire to influence interest or funds to the department with which he was naturally most sympathetic. It was quite impossible for anyone to know from his public utterances or private talks that the medical side was specially under his care." He gave his warm support to the department of Spanish and the inauguration of its first professor, and the creation of the Charles Booth Chair of Social Studies saw one of his earliest hopes fulfilled. One other department, attached to the University, but not officially part of it, owed much to his friendly sympathy and to the wisdom and courage with which he spoke upon it all through his period of office—the Board of Biblical Studies. Although for various reasons he was not convinced that the time had yet arrived for the creation of a Theological Chair, he would have liked to see Biblical Hebrew taught, and the appeal in 1926 for a Chair of Semitic Languages as a memorial to the late Pro-Chancellor Caton was at once assured of his active interest. The world of religion and religious thought had always been a fascinating field for him, and he often said he would have liked another life in which to study it; as it was, it came to occupy a good deal of his thought. In these last years he had come gradually to a synthesis of faith and experience that was in harmonious continuation with the beliefs of his whole life, and which he felt might prove a ground of reconciliation for others whose faith and reason were in conflict. In his spare time he put his thoughts together. A smaller mind might have hesitated to

disclose his own beliefs, but Adami never refused expression to anything that seemed to him to deserve record; he was too big and too simple for such reservations. He spoke whenever the opportunity presented itself. He preached twice at the Church of St. Edward the King, Cambridge, in 1922 and 1925, and at Mossley Hill Church, Liverpool, delivered the Sunday evening sermon during the meeting of the British Association in 1923. He wrote several pamphlets on the subject of "The Unity of Faith and Science," and many of the free hours of 1926 were given to the preparation of his paper for the Church Congress held in Southport in October of that year under the title, "The Eternal Spirit in Nature as seen by a student of Science." He was discussing its argument and dictating its concluding paragraphs up to within three days of his death, and the paper was read two months later. This paper, as the crystallized statement of his beliefs, shows the progress of his mind from a simple reliance upon a beneficent and creative ruling Power to a whole-hearted acceptance of most of the orthodox Christian doctrine, and it insists that there is no necessity for divorce between the life of faith and that of scientific inquiry. He had come to his conclusions not in spite of but through his scientific work, and from the laws that governed material things he had been drawn to determine some, at least, of the laws of the Spirit. Assuming that many of our natural laws were based upon assumptions incapable of themselves of logical proof, he showed how upon being tested they were found to be valid. In the same way, in the world of spiritual apprehen-

sions he had found his intuitions develop into faith, and the validity of that faith he had proved again and again by experience. This was his reconciliation of science and faith, not the easy union of compromised religious truth and a drugged intelligence, but a unity to which intellectual struggle, scientific inquiry and spiritual apprehension could each bring their real contribution, and in which all might achieve their purpose and end. A unity so constructed could not be moved, and the sufferings that came to him in his last years had no power to disturb or to dismay. His calm acceptance of them was his own expression of what he believed. He took them as they came to him, and bound them, with no word of rebellion, into his experience.

With all this it might well be asked—where was the relaxation? In truth there was very little. Passing through Cambridge he might look in for an hour or two on Shipley or call at Jesus and have an hour with the Master. He had been made an honorary Fellow of both Christ's and Jesus upon his return to England, and of the many honours that came to him none gave him greater pride than these. Then, again, during these years he never missed an opportunity of going to see Lady Osler in Oxford, and of keeping in touch with a circle of interests which Osler's death, soon after Adami's arrival in Liverpool, had so sadly broken. But such interludes were of a very fleeting nature, and were usually squeezed in between two engagements. Though the most contented of mortals, Adami had not the capacity for idling happily, and the vacations of these years were never long. He found it difficult

to arrange a holiday until the last moment, and had a cheerful indifference in regard to plans for his own comfort. He liked best to get out of England if only for a couple of weeks, and once across the Channel to wander among the cathedrals and museums of France and Italy, absorbed in their artistic treasures. He disliked the sea, he felt it to be restless and cruel, and after a few hours would wish to return to the serene and steadfast beauty of fields and trees. Yet Nature for herself did not cause him acute delight, and for this reason he could never appreciate the poet Wordsworth. Nature to him was either a background for human problems and human affairs or a subject for a painting, and in looking at a landscape he would very soon be wondering what kind of a picture would it make—and where would the cottage (or the campanile) come in best. Under these conditions it will be easily understood why Switzerland did not appeal to him, while the Italian country-side dotted with little cities was a continual delight. After 1922 he began sketching again, and a month's lessons from Mr. W. Egginton on Dartmoor in August 1925 did much to help his technique and style. He worked hard at sketching during vacations in England and abroad, and having found a congenial subject would sit painting for hours with a total disregard of food or rest, and an equal disregard of critical passers-by.

At home his working days were very full and always ended late. He had never given up his Undergraduate habits of sitting up far into the night, and after a busy evening of meetings and speeches he would return to a quiet couple of hours with his mind fresh

and detached. Although, as he once wrote of himself, "the celestial deities know that on paper I can't distinguish one note from another," still, all his life he had had "a tune in his head," and it was during these hours that he put it on paper. He might write a carol, or compose some verses on a topical event, or design a book-plate, or finish off one of his sketches. Or more often he was occupied in writing a personal letter—nearly always of an advisory nature—to someone whose friend or child was ill, or who wanted his help. In the variety of these occupations he found his relaxation, and at the same time the sharpening of his energies for his work.

These first four years were crowded enough to satisfy even his energetic mind, and the last summer, 1923, was particularly full with the ordinary University routine, and with numerous public engagements. In May Adami revived his Pasteur enthusiasms by attending the centenary celebrations in Paris, carrying there the University greeting which, as one of Pasteur's pupils, it had been his pleasure to compose, and writing home every day vivid accounts of the ceremonies. July 7th was Degree Day. Earlier in the year he had been invited by the University of London to undertake on behalf of the Senate a general inspection of the Medical Schools of the University, and immediately term was over he went up to London and settled down to the task. The work occupied the remainder of the month, and Adami returned home with a weighty collection of coloured cards and set to work upon them. Most of August was spent in a remote inn in the Cotswold country writing

the initial draft of the Report. He felt it to be a responsible undertaking, he embodied in it all his designs for the future of medical education in this country, and it was by no means finished when he returned to Liverpool for the visit of the British Association on September 11th. During that week, No. 9, like every other Liverpool house of any size, was filled with guests. The hall door was opened before breakfast, and as the days were fine and sunny it was not closed again till the last visitor had left in the evening. There was a cheerful informal coming and going all day long of old friends from all over the world, and Adami's genius for hospitality was satisfied by a party every night that was never less than fourteen, and that upon one occasion, specially designed for the Presidents of Sections, numbered twenty-two. In later years he often reminded others of the incident that occurred one afternoon, when, wandering through the hall at about 6 p.m., he found a famous French physicist looking for his hat. He explained that he was anxious to get a tram to convey him to St. George's Hall in time for the early afternoon session! Further inquiries revealed the fact that he imagined it was only about 2.30, for, having been in conversation with Niels Bohr in the library since lunch, he had become unobservant of the flight of time. For such incidents as these the Meeting of 1923 was memorable; at its close there was only just time for a fortnight's holiday in Burgundy before the autumn term began.

It was thus, in the full stream of his University and civic activities, busy, happy, absorbed, that Adami

became conscious of the fatigue that was the first warning of his impending illness. The term was a very busy one, and the only break was a two-day visit to Haigh Hall upon the occasion of Lord Crawford's installation as Chancellor of the University of Manchester, at which Adami was one of the honorary graduates, a distinction which as an old Owens' man gave him peculiar satisfaction. Every spare hour during October and November was devoted to finishing his London Medical Schools report, and by early December it was completed. The report was a document of fifty-one printed pages. It was much more than an analysis of the Medical Schools inspected; it embodied also discussions of many of the points then engaging the attention of those concerned in medical education, and was characteristically precise and definite in its recommendations. Term closed as he forwarded his report to London, and it was then that he became aware of an unusual weariness and was at last obliged to submit to medical care and go to bed. Here, on January 1st, 1924, he was seen by his friend and medical advisor, Sir Humphry Rolleston, in consultation with his own Liverpool doctors, Dr. W. Murray Cairns and Dr. E. Cronin Lowe. It was found that he was suffering from a disease of the glands "of which," says Sir Humphry Rolleston, "he must, more surely than most medical men, have known the inevitable end." It is indeed clear from the immediate practical arrangements he made that he looked then at all possible developments, but he did not speak of what he knew, and though from that day the next two and a half years were lived under

the shadow of great weariness and the certainty of approaching death, he did not check or alter any of his interests or activities. Up to this time he had hardly known a day's illness. His life had been uniformly robust with the health that comes of a sound family inheritance and an equable temperament. Under this reversal of his hopes his serenity remained unmoved, and having faced the future in all its bearings he dismissed the inevitable from his mind.

This does not mean that he refused medical advice. From the first his doctors had his complete confidence, and he was cheerfully willing to obey any suggestion which would retard the advance of the disease. Sunshine and open air were prescribed as the immediate necessities, and so soon as his work could be arranged he went off for four months to Sicily. The duties of his University routine work were divided, those of his own office being taken over by Sir William Herdman, and those specially dealing with Senate and Council by Professor Oliver Elton, and both of these friends as well as his two devoted secretaries reduced his sense of exile and kept him in touch with University affairs by constant letters. The complete change did much to renew and strengthen him, and the beauty and historic interest of the Sicilian cities were a continual source of stimulus and delight. In Palermo he fell under the spell of the architecture of the Saracenic conquerors, and spent some days making a drawing according to scale of one of the churches, which, he thought, might be adapted for a College Chapel. On fine days there were the olive and almond trees to paint, when it rained there were the mosaics of Mon-

reale to study, and the journey home was taken slowly by way of Paestum and Ravenna in order to compare the temples and mosaics with the more ancient treasures further south at Segesta and Cefalù. He was in Liverpool again by the end of May, and carried through the second half of the summer term. In late July, acting upon medical advice, he went to America and placed himself in the hands of his old friend Dr. W. B. Coley, and there is no doubt that the treatment he received there had the desired effect of holding back the disease for another twelve or fourteen months. The care he was given in the New York hospital, and later in the beautiful Connecticut village where Dr. Coley had his summer house, were both encouragement and tonic to him. At the beginning of September he was so far restored that he was able to pay a short visit to Canada, and in spite of the Long Vacation he met many of his old friends, and was able to step back for a time into the McGill happenings and affairs.

Upon his return to England he took up all his old occupations, and though under constant medical supervision he made no difference in his engagement book. Two sunny vacations in 1925, one at Rapallo and the other on Dartmoor, kept up his strength, and it was not until December 1925 that fresh symptoms appeared. He spent almost the whole of the Christmas Vacation in bed, gathering energy for the spring term, but increasing fatigue made it very difficult, and at its close he agreed to a second visit to America for another course of the treatment which had benefited him eighteen months before. His only

stipulations were that he could not leave England before Monday, March 22nd, on which date he had promised to speak upon the Liverpool Cancer Campaign with Professor Blair Bell before the Medical Society of London, and that he must be back in England by April 29th, when he had promised to speak at the four-hundredth Anniversary Celebrations of Boteler Grammar School at Warrington. Both these conditions were fulfilled by means of the White Star passenger service from Southampton to New York. Adami drove from his meeting in London to the train, and arrived on board the *Majestic* about two hours before she sailed on March 22nd. He reached Southampton again on the *Olympic* on April 23rd. Of this short month only just over a fortnight was spent on land, and inevitably most of that time was devoted to the treatment in New York, where Dr. Coley did everything that could be done to hold the disease in check. Adami, however, had his mind full of plans. On the voyage out he compiled a list of treasures with which he wished to refresh his memory in the Metropolitan Museum, and by a series of short visits he found them all. Again, he was aware that the library of the Warrington dispensary had been bought and conveyed in Osler's time to the Johns Hopkins University; he must read up the history of the transference while he was in New York in preparation for his Warrington speech, and many odd hours found him in the great library on Fifth Avenue, absorbed in his inquiry and ignoring his exhaustion. And last of all, feeling himself somewhat revived towards the end of the fortnight, he

insisted on a forty-eight hour visit to Washington, which with its wide spaces and formal beauty had always given him pleasure. His journey back across the Atlantic was filled, not with the weary introspections of a semi-invalid, but with all he had managed to do and see despite the purpose for which he had gone.

At the beginning of the summer term of 1926, therefore, he was back at his desk at the University, but within a few weeks of his return it was evident that, in spite of the preventive measures that had been taken, the disease had reasserted itself and was making rapid and certain strides. It would be out of harmony with Adami himself, and with his sturdy outlook on life, to dwell with any undue emphasis upon the details of his illness and of these last months, but the simple statement of what he carried through in face of daily weakness and of rapidly failing strength is sufficient and justifiable illustration of his character. The term's doing went cheerfully forward: little or no cancellation was permitted in his engagement book, and those who went to him at the University found that his sympathy in them and their concerns had not slackened. There was the usual quota of summer prize-givings, dinners and speeches, and at the end of May he went down to Bristol to the annual meeting of the Royal Institute of Public Health, where he opened the discussion on Cancer in an address entitled "Concerning the Nature of Malignancy." He was specially eager to attend the coming of age celebrations at Sheffield University, and although they fell during

the last week of the Liverpool term, this visit was achieved with a little ingenuity and the help of the small car in which many of the journeys of the last twelve months had been taken. He left the University at the conclusion of its last Senate meeting at 3.30 on the Wednesday afternoon, arrived at Sheffield in time for dinner with Sir Henry Hadow, and after the ceremonies next day drove back to Liverpool just in time to close the evening Soirée of Commemoration Week. Another crowded two days and the term was over.

Cambridge of all places held his affections. For many months he had been looking forward to a visit there from July 12th–17th as guest of Sir Humphry and Lady Rolleston and as a delegate to the Congress of the Universities of the British Empire. The summer beauty of the place had perhaps never given him greater pleasure than upon his arrival there by car on the evening of July 12th, and in spite of his fatigue the week was full of happiness. He saw a good deal of Shipley, dined at Christ's and at Jesus, attended every function and made two speeches, one on "Physical Training for Undergraduates" and the other on "Superannuation Schemes." The only free morning was used for a drive to Ely, where he refreshed his memories of the Norman doorway, the lantern tower, and the bright flowering borders of the tiny garden behind. He was in Liverpool again by the Saturday night.

During this month the exhaustion and anæmia were progressing at an alarming rate, but except for the

frequent rests without which he could not have gone on at all, he took no special interest in his condition, and on Wednesday, July 21st, went to London for the Consultative Committee and for the Royal Garden Party next day. After a long afternoon at the Palace he caught the 6.25 train to Nottingham for the British Medical Association Conference, and returned home the next evening enthusiastic at the reception that Professor Blair Bell's paper had received. His last journey was to Oswestry on July 26th, when with the help of strychnine he found strength enough to present the prizes at the Girls' High School and to deliver a twenty-five minutes' speech that was a combination of humour and educational theory.

This short catalogue of the engagements of these last two months is perhaps sufficient to illustrate the will which dominated his physical weakness, but by the 29th his last Committee was over, his University papers signed, he had closed down his office work, and he gave himself unreservedly into the doctors' hands for whatever they might think was best. He became almost immediately gravely ill, but during the next fortnight while he was being nursed in his own home he still kept on working, either at his address for the Church Congress, or at a speech for the Cancer meeting, or upon some University plan for the autumn. His bed was always covered with papers.

When on August 14th there was a temporary rally he was driven down to Ruthin Castle. It had always been Adami's view that the proper place for a sick

man was a hospital, and he was now determined to put his theories into practice. He had been so little in bed during his life that the solemn seclusion of an isolated sick-room had been specially trying to him, and at Ruthin, as he knew, he would be in medical surroundings. His son Donald had arrived from India in July, and his presence in the house had immensely cheered Adami. It was Donald who drove him down to Ruthin Castle, where from the first moment of his arrival he was happy and at home. The beauty of the place and the surrounding country was an immediate refreshment, and he was delighted to be under the care of Dr. Edmund Spriggs, whom he had known for years, and whose sustaining and penetrating kindness it is impossible to describe. For Dr. Patterson, in whose special charge he was, Adami soon came to have a reliant affection. His family was near by. His brother Leonard only arrived from India the day he died, but his sister Eva came from Quebec, his sister Lisette from Belfast, and during this fortnight he was able to have frequent visits from them and from his children Isabel and Donald. A visit from Sir Humphry Rolleston a few days before his death did much to cheer and help him, but throughout all this time he was calm and cheerful, and the natural gaiety of his mind had never been more evident. His unselfishness and serenity dominated the growing prostration and the acute later stages of distress and weakness. Nothing disturbed the tranquillity of his mind and spirit. He died on Sunday, August 29th, 1926.

The funeral took place on Thursday, September 2nd, in Liverpool Cathedral, and afterwards at Allerton Cemetery, and a Memorial Service for the University of Liverpool was held in Liverpool Cathedral on October 15th, 1926.

CHRONOLOGICAL LIST OF PUBLICATIONS OF JOHN GEORGE ADAMI

(1862–1926)

1885. On the nature of glomerular activity in the kidney. *J. Physiol.*, 1885, vi, 382–436.

1888 (and Roy, C. S.). Remarks on failure of the heart from over-strain, being the opening of a discussion in the section of Pathology at the annual meeting of the British Medical Association held in Glasgow, 1888. *Brit. Med. J.*, 1888, ii, 1321–26.

(and Roy, C. S.). The physiological bearing of waist-belt and stays. *National Review*, 1888, November.

1889. On the functions of the glomeruli of the kidney; a contribution to the study of albuminuria. *Practitioner*, 1889, xliii, 241–59.

Notes on an epizoötic of rabies; and on a personal experience of M. Pasteur's treatment. *Brit. Med. J.*, 1889, ii, 808–10.

Une épidémie de rage sur un troupeau de daims. *Ann. de l'Inst. Pasteur*, 1889, iii, 658–63.

Hysteria in the male. *Brit. Med. J.*, 1889, i, 1062.

1890 (and Roy, C. S.). Heart-beat and pulse-wave. *Practitioner*, 1890, xliv, 81, 161, 241, 347.

1891. Upon a tubercular growth rich in giant-cells produced by a minute nematode. *Med. Chron.*, 1890–91, xii, 466–72.

1892. Recent studies upon immunity. *Med. Chron.*, 1891–92, xv, 95, 151.

On the action of the papillary muscles of heart. *Proc. Camb. Phil. Soc.*, 1892, vii, 78–83.

Phagocytosis and immunity. *Brit. Med. J.*, 1892, i, 498.

On the variability of bacteria and the development of races. *Med. Chron.*, 1892, xvi, 366–89.

On the disturbances of the body temperature of the fowl which follow total extirpation of the fore-brain. *Proc. Camb. Phil. Soc.*, 1892, vii, 156–59.

(and Roy, C. S.). Contribution to the physiology and pathology of the mammalian heart. *Phil. Trans.*, 1892, Lond., 1893 (B), clxxxiii, 199–218.

1893. Modern pathology. *Montreal Med. J.*, 1892–93, xxi, 561–81.

Report of three prostatic tumours removed by Dr. Armstrong. *Montreal Med. J.*, 1892–93, xxi, 647–49.

On the communicability of tuberculosis from man to man. *Montreal Med. J.*, 1892–93, xxi, 813–16.

1894 (and Alloway). Hæmatoma of left Fallopian tube. *Montreal Med. J.*, 1893–94, xxii, 679.

(and Day, J. L.). Two cases of complete double ureter. *Montreal Med. J.*, 1893–94, xxii, 736–38.

(and Finley, F. G.). Case of multiple abscess of the brain associated with pulmonary disease. *Montreal Med. J.*, 1893–94, xxii, 807–10.

(and Stewart, J.). Case of primary angiosarcoma of the upper portion of the left pleura. *Montreal Med. J.*, 1893–94, xxii, 909–14.

1895. "On this side Jordan": Inaugural lecture in the Faculty of Comparative Medicine, McGill University, October 1894. *Montreal Med. J.*, 1894–95, xxiii, pp. 1–16.

Case of primary carcinoma of the liver. *Canad. Med. Rec.*, 1894–95, xxiii, 99.

Secondary enchondroma in a bitch. *Canad. Med. Rec.*, 1894–95, xxiii, 105.

On two different conditions of the mitral valve giving rise to presystolic murmur. *Canad. Med. Rec.*, 1894–95, xxiii, 230–32.

Modern difficulties in bacteriological diagnosis. *Montreal Med. J.*, 1894–95, xxiii, 321–30.

Notes upon cardiac hypertrophy. *Montreal Med. J.*, 1894–95, xxiii, 811–23.

1896. Aneurysm of the arch of the aorta. *Montreal Med. J.*, 1895–96, xxiv, 410–13.

Case of malignant intra-bronchial growth associated with a misleading train of symptoms. *Montreal Med. J.*, 1895–96, xxiv, 510–13.

(and Kirkpatrick, R. C.). A case of Madura foot disease (Mycetoma pedis, ochroid variety). *Trans. Ass. Am. Physicians*, Philad., 1895, x, 92–100.

(and Kirkpatrick, R. C.). Further observations upon Madura foot disease in America. *Montreal Med. J.*, 1895–96, xxiv, 485–90.

(Martin, C. F., *et al.*). Discussion on carcinoma. *Montreal Med. J.*, 1895–96, xxiv, 581–618.

Aneurysm of lower end of the thoracic aorta. *Montreal Med. J.*, 1895–96, xxiv, 87–90.

(and Ruttan, R. F.). Notes on the composition of the blood serum in pernicious anæmia. *Brit. Med. J.*, 1896, ii, 1700–1.

Notes on the lungs of one of Koch's earliest tuberculin patients. *Montreal Med. J.*, 1895–96, xxiv, 187.

Middleton Goldsmith Lectures. On the relationship between inflammation and sundry forms of fibrosis. *Med. Rec.*, N.Y., 1896, xlix, 361, 397; l, 169.

Inflammation. In Allbutt's *System of Medicine*, 1896, i, 54–139.

Upon arrested or repaired dissecting aneurysms, with the reports of two cases. *Montreal Med. J.*, 1895–96, xxiv, 945–54.

1897. Notes upon a case of multiple abscesses of the liver, associated with purulent bronchitis and interstitial pneumonia; abscesses in the spleen and pancreas. *Montreal Med. J.*, 1896–97, xxv, 100–3.

Upon a case of foaming liver (Schaumleber) with the development of gaseous bullæ in various organs, due to the presence of the *Bacillus ærogenes capsulatus*. *Montreal Med. J.*, 1896–97, xxv, 115–18.

The centenary of vaccination. *Montreal Med. J.*, 1896–97, xxv, 81–93.

(and Stewart, J.). Aneurysm of the ascending portion of the aortic arch, leading to external rupture, with a note on tracheal tugging. *Montreal Med. J.*, 1896–97, xxv, 386–91.

The doctrine of internal secretory activity of glands in relation to the pathological anatomy of sundry morbid conditions (of diabetes, Addison's and Graves' diseases, myxœdema, cretinism and acromegaly). *Tr. Cong. Am. Phys. and Surg.*, N. Haven, 1897, iv, 103–21.

1898. The great omentum; with more especial reference to the part played by it in inflammations of the abdominal viscera. *Canad. Practitioner*, 1898, xxiii, 129–42.

Obituary of Sir Richard Quain. *Montreal Med. J.*, 1898, xxvii, 315–18.

The bacteriology of progressive cirrhosis of the liver. *Lancet*, 1898, ii, 396–400.

On the stages and forms of syphilis with more especial reference to the hepatic manifestations of the disease. *Montreal Med. J.*, 1898, xxvii, 401–21.

Upon the existence of a minute micro-organism associated with cases of progressive portal cirrhosis. *Montreal Med. J.*, 1898, xxvii, 485–89.

On a case of sacculated aneurysm of the parieto-temporal branch of the middle cerebral artery. *Montreal Med. J.*, 1898, xxvii, 597–99.

On the bactericidal functions of the liver and the etiology of progressive hepatic cirrhosis. *Brit. Med. J.*, 1898, ii, 1215–19.

1899. Dr. Trudeau and the open-air treatment of phthisis in America. *Practitioner*, 1899, lxii, 147–50.

(with Abbott, M. E., and Nicholson, F. J.). On the diplococcoid form of the colon bacillus. *J. Exper. Med.*, 1899, iv, 349–72.

Obituary of A. A. Kanthack. *Montreal Med. J.*, 1899, xxviii, 157–60.

On the significance of bovine tuberculosis and its eradication and prevention in Canada. *Canad. Journ. Med. and Surg.*, 1899, vi, 391–405.

Syphilis and the liver. *New York Med. J.*, 1899, lxix, 549–53.

Tuberculosis in Canadian cattle and its prevention. *Canada Lancet*, 1899–1900, xxxii, 2–6.

(and Martin, C. F.). Report on observations made upon the cattle at the experimental station at Outrement, recognized to be tuberculous by the tuberculin test. 8vo. Ottawa, 1899.

1900. Latent infection and sub-infection and the etiology of hæmochromatosis and pernicious anæmia. *Med. News*, N. Y., 1900, lxxvi, 8–12.

On growth and overgrowth and on the relationship between cell differentiation and proliferative capacity; its bearing upon the regeneration of tissues and the development of tumours. *Med. Chron.*, 1900, 3 ser., iii, 161–73.

On the etiology and symptomatology of goitre. *Montreal Med. J.*, 1900, xxix, 1–17.

On the teaching of pathology. *Philad. Med. J.*, 1900, vi, 399–402.

The plague; a prospect and retrospect. *Montreal Med. J.*, 1900, xxix, 241–55.

(and Gardner, W.). On a case of retroperitoneal lipoma myxomatodes with accompanying retroperitoneal fibroma (chondro-myxo-fibroma). *Montreal Med. J.*, 1900, xxix, 417–21.

Tropical and subtropical diseases in Canada. *Brit. Med. J.*, 1900, i, 1544–45.

(and Girdwood, G. P.). On a monster presenting anterior duplicity. *Montreal Med. J.*, 1900, xxix, 501–4.

1901. On the causation of cancer and other new growths. *Brit. Med. J.*, 1901, i, 621–28.

On the teaching of pathology. *Indian Med. Rec.*, 1901, xx, 327–30.

On the theories of inheritance, with special reference to the inheritance of acquired conditions in man. *Brit. Med. J.*, 1901, i, 1317–23.

1902. Contribution to a discussion upon the parasitology of malignant growths (on syncytioma malignum). *Clinical Journ.*, 1902, xx, 141–44.

On the relationship between human and bovine tuberculosis. *Philad. Med. J.*, 1902, ix, 356–65.

On tuberculosis in relation to the live-stock industry. *Boston M. and S. Journ.*, 1902, cxlvi, 619–24.

On the use of the term blastoma. *Lancet*, 1902, i, 1562; 1902, ii, 479–80.

Pictou cattle disease. *Montreal Med. J.*, 1902, xxxi, 105–17.

The art of healing and the science of medicine. *Montreal Med. J.*, 1902, xxxi, 16–29.

1903. On the classification of tumours. *J. of Path. and Bact.*, 1902–3, viii, 243–59.

On ankylostomiasis or uncinariasis; a review. *Montreal Med. J.*, 1903, xxxii, 186–94.

Exogenous perforative ulceration of the intestines. *Montreal Med. J.*, 1903, xxxii, 401–19.

William Ernest Henley; poet and patient. *Montreal Med. J.*, 1903, xxxii, 660–68.

On appetite juice and the ethics of eating. *Montreal Med. J.*, 1903, xxxii, 800–9.

1904. On facts, half-truths and the truth, with special reference to tuberculosis. *Maryland Med. J.*, 1904, xlvii, 117–34.

(and Chopin, J. A.). On a simple method of isolating from water forms which agglutinate with typhoid serum. *J. Med. Research*, 1904, 469–74.

1905. Certain points in connection with the development of our knowledge of actinomycosis and its causation. *Montreal Med. J.*, 1905, xxxiv, 88–93.

Inflammation. In Allbutt's *System of Medicine*. 2nd ed., 1905, i, 702–818.

Adaptation and tuberculosis. *Montreal Med. J.*, 1905, xxxiv, 319–34.

(with Bell, J., and Robbins, G. D.). Chronic human glanders. *Montreal Med. J.*, 1905, xxxiv, 538–40.

The double allegiance of the medical officer of health. *Amer. Pub. Health. Assoc. Rept.*, 1905, xxxi, 1906, 126–34.

1906. Immunization against malignant growths (Ehrlich). *Montreal Med. J.*, 1906, xxv, 405–9.

The dominance of the nucleus. *Brit. Med. J.*, 1906, ii, 1760.

The myelins and potential fluid crystals of the body. *J. Amer. Med. Ass.*, 1907, xlviii, 463–68.

(and Aschoff, L.). On the myelins, bodies and potential fluid crystals of the organism. *Proc. Roy. Soc. Lond.*, 1906, s. B, lxxviii, 359–68.

1907. Charles White, surgeon and obstetrician. *Med. Libr. and Hist. J.*, 1907, v, 1–18.

Inheritance and disease. In *Modern Medicine* (Osler). 8vo. Philad., N. Y., 1907, i, 17–50.

Inflammation: an introduction to the study of pathology. Being the reprint (revised and enlarged) of an article in Allbutt's *System of Medicine*. 8vo. Lond., 1907, pp. 1–256.

On twins and double monsters and sundry other topics. *Dominion Med. Month.*, 1907, xxix, 243–50.

1908. On a giant-celled rhabdomyosarcoma from the trout. *Montreal Med. J.*, 1908, xxxvii, 163–65.

The myelins and potential fluid crystalline bodies of the organism. Harvey Lectures, Philad., N. Y., 1908, 117–38.

The principles of pathology. v. I: General pathology. 1a. 8vo. Philad., N. Y., 1908, pp. 1–948, pls. 1–16.

Sir John Harrington. *Johns Hopkins Hosp. Bull.*, 1908, xix, 285–95.

1909. On gall-stones, and more particularly upon their cholesterin constituents. *West Canad. Med. J.*, 1909, iii, 1–17.

Inflammation. In Keen's *Surgery*, v. 1, 1909, 182–227.

Pathological discovery and its bearing upon preventive medicine. *New York Med. J.*, 1909, lxxxix, 569–75.

(and Landry, A. R.). Study of organized pleural adhesions and their relationship to tuberculosis, based on an analysis of 1374 consecutive autopsies. *Montreal Med. J.*, xxxviii, 1909, 261–66.

The essentials of success in a post-graduate school. *Post-Graduate*, N. Y., 1909, xxiv, 392–94.

Economics and success in tuberculosis crusade. *Canad. Journ. Med. and Surg.*, 1909, xxvi, 94–98.

Man and woman. A valedictory address delivered to the graduating class of the Royal Victoria Hospital training school for nurses. 1909. pp. 1–25.

Nature of the arteriosclerotic process. *Amer. J. Med. Sci.*, 1909, n.s., cxxxviii, 485–504.

A lecture on life. *Montreal Med. J.*, 1909, xxxviii, 359–74.

(and Nicholls, A. G.). The Principles of Pathology. v. 2: Systemic Pathology. la. 8vo. Philad., N. Y., 1909. pp. 1–1082, pls. 1–15.

1910. The basal principles of vaccine therapy. *J. Amer. Med. Ass.*, 1910, liv, 1922–25.

The Principles of Pathology. 2nd ed. v. 1: General Pathology. la. 8vo. Philad., N. Y., 1910. pp. 1–1027, pls. 1–18.

Ditto. 2nd ed. (with A. G. Nicholls). v. 2: Systemic Pathology. *ibid.* 1911.

On Canadian effort against tuberculosis. *Montreal Med. J.*, 1910, xxxix, 511–18.

1911. The complete physician. *Canada Lancet*, 1910–11, xliv, 170–86.

On chronic endocarditis, regarded as a fibrosis of the valves of non-infective origin. *Interstate Med. J.*, 1911, xviii, 601–4.

(with Vallée, A., and Martineau, G. E.). Notes sur un porteur chronique de vibrions cholériques. *Bull. Med. de Quebec*, 1911, xiii, 193–208.

On habit, symptoms and disease. *Internat. Clin.*, Philad., 1911, xxi, ser. iii, 116–30.

A chronic cholera carrier. *Canad. Med. Ass. J.*, 1911, i, 697–710.

1912. The conquest of hookworm diseases. *New York Med. J.*, 1912, xcv, 651–53.

On the classification of blastomatous tumours. *Atti d. cong. internaz. di Patologia*, 1911, Torino, 1912, i, 35–42.

(and McCrae, J.). A text-book of Pathology for students of medicine. 8vo. Philad., N. Y., 1912, pp. 1–759, pls. 1–11.

Some phases of the tuberculosis question. *Amer. Pract.*, N. Y., 1912, xlvi, 297–302.

A study in eugenics: "Unto the third and fourth generation." *Lancet*, 1912, ii, 1199–1204.

Presidential address given before the Royal Society of Canada, 1912. *Trans. Roy. Soc. Canada*, 1912, 3rd ser., vi, sect. iv, 3–7.

Presidential address at the annual meeting of the Canadian Association for the Prevention of Tuberculosis. Toronto, 1912.

On latent and recurrent infection, and on sub-infection. *J. Iowa State Med. Soc.*, 1912, ii, 375–87.

1913. The Cancer Research Institute. *New York Med. J.*, 1913, xcvii, 1269–71.

Hyperblastosis (Abstract). *Brit. Med. J.*, 1913, ii, 381.

The future of the medical man. *J. Amer. Med. Ass.*, 1913, lxi, 526–31.

Symposium on cancer, Cancer Research Institute. *Amer. J. Obstet.*, 1913, lxviii, 771–73.

On the relationship between tumours proper (Blastomas) and hyperblastosis. *Brit. Med. J.*, 1913, ii, 381.

Certain elementary concepts in education applied to medicine. *Med. Record*, N. Y., 1913, lxxxiii, 875–81.

1914 (and Todd, J. L.). Concerning the immunities of tolerance. *Canad. Med. Ass. J.*, 1914, iv, 103–7.

A Text-Book of Pathology, 2nd ed., revised and enlarged. 8vo. Philad., N. Y., 1914, pp. 1–895, pls. 1–13.

Medical Records of the War. *Lancet*, 1914, ii, 1116.

Evolution of the infections. *Trans. Vermont Med. Soc.*, 1914, pp. 1–26.

A great teacher (Sir Michael Foster) and his influence. *Queen's Med. Quart.*, Canad., 1913–14, xix, 1–17.

An address on chronic intestinal stasis, "auto-intoxication" and subinfection. *Brit. Med. J.*, 1914, i, 177–83, 789.

1915. Parenteral digestion and immunity. *Canad. Med. Ass. J.*, 1915, v, 569–78.

1916. On the life-history of the meningococcus and of other bacteria. *Brit. Med. J.*, 1916, ii, 525. Elias Metchnikoff. *Brit. Med. J.*, 1916, ii, 130.

1917. The Croonian Lectures on adaptation and disease. *Nature*, 1917, xcix, 495–99.

Sir E. Ray Lankester rebuking rudeness (Letters). Letters contributed to the *Brit. Med. J.*, 1917, ii, August.

1918. Adaptation and disease. *Brit. Med. J.*, 1918, i, 658.

(and Cunningham, J. T.). Ditto. *Brit. Med. J.*, 1918, i, 737.

(with Bowerman, F. B., *et al.*). Combined inquiry into the presence of diphtheria and diphtheroid bacilli in open wounds. *Canad. Med. Ass. J.*, 1918, viii, 769–85.

Heredity as a factor in certain diseases: a study of the rejected. *Medical Press*, 1918, cvi (n.s.), 421.

Antenatal and neonatal factors in infantile mortality. II. The experimental aspect. *Maternity and Child Welfare*, 1918, ii, 340.

The physical census. *Trans. Med. Soc.*, Lond., 1918, xliii, 34–52.

Medical contributions to the study of evolution. la. 8vo. Lond., 1918.

John McCrae. *Brit. Med. J.*, 1918, i, 190.

1919. The policy of the ostrich (venereal disease in the army). *Lancet*, 1919, i, 109.

War Story of the Canadian Army Medical Corps. v. I. sm. 8vo. London. 1919.

Prevention and arrest of venereal disease in the army. *J. State Med.*, 1919, xxvii, 65–95.

On the problem of graduate medical study in London. *Contrib. Med. and Biol.*, dedicated to Sir W. Osler, N. Y., 1919, i, 10–15.

1920. The last days of Sir William Osler. *Canad. Med. Ass. J.*, 1920, x, 70–77.

Medicine and the War. *Canad. Med. Ass. J.*, 1920, x, 881–900.

Science and art of medicine. *Lancet*, 1920, ii, 732–35.

1921. Standardization in bacteriology. *J. State Med.*, 1921, xxix, 65–73.

The true aristocracy. *Scient. Month.*, N. Y., 1921, xii, 420–34.

1922. The Manchester school: Charles White (1728–1813) and the arrest of puerperal fever. *J. Obstet. and Gyn. Brit. Emp.*, 1922, xxix, 1–20.

Case diagnosed as fulminant menstrual peritonitis: a contribution to the study of idiopathic puerperal fever (self-infective). *J. Obstet. and Gyn. Brit. Emp.*, 1922, xxix, 104–7.

Edward Collett Hort. *Brit. Med. J.*, 1922, ii, 778.

1923. Influenza. Medical History of the War: Pathology, pp. 413–66, London, 1923.

On the unity of the churches. A sermon delivered in the Church of St. Edward the King, Cambridge, Advent Sunday, 1922. sm. 8vo. Cambridge, 1923, pp. 1–20.

Science in relation to literature and philosophy. An address delivered before the Literary and Philosophical Society of Liverpool, February 19th, 1923. 8vo. 1923. pp. 1–17.

1926. Advance in medicine; with reference to the campaign against tuberculosis. *Lancet*, 1926, i, 1027–31.

Concerning the nature of malignancy. *J. State Med.*, 1926, xxxiv, 415–21.

Sir William Osler's part in the medical history of the War and the organization of the British Medical War Museum. *Internat. Assoc. Med. Museums* (Sir William Osler Memorial Number), Bull. No. 9, p. 80.

Christianity and natural science. In *The Eternal Spirit*, by C. E. Raven, pp. 1–73 ff. Liverpool, 1926.

Nte his repot on London Med Exhib 1913? — Date?

ADAMI AS PATHOLOGIST

By ALBERT G. NICHOLLS, M.A., M.D., D.Sc., F.R.C.S.,

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PERHAPS Adami's greatest and most enduring title to fame will prove to be *The Principles of Pathology*, a work now twenty years old but still consulted by pathologists in England, Canada and the United States. It can even now be found in the library of many a medical man in Canada who looked up to him as teacher and friend. It was unique at the time of its publication; it is unique still. The reason is that, for the first time, an attempt, and a successful one, was made to look behind and beyond mere facts, to ascertain their relations, to reveal the " why " and " wherefore " of things, in short, to spell out the philosophy of disease. The time was ripe for such an attempt. Adami, as a teacher, realized to the full the truth of the remark of Oliver Wendell Holmes, that " the easiest and surest way of acquiring facts is to learn them in groups, in systems, and systematized knowledge is science." No apology is necessary for entering upon a detailed analysis of the work, for I feel that this course will, better than anything else, express Adami's pathological " confession of faith."

It was about the end of 1898 that the call came to Adami to write a text-book on Pathology. He was approached by the well-known firm of medical publishers in Philadelphia, Messrs. Lea and Febiger, with the proposal that he should write a book of some seven hundred pages for the use of students. But he had had the idea in mind before this. His lectures in New York, on Inflammation, had been elaborated into an article on the subject for the first volume of Allbutt's *System of Medicine*, which, from the breadth of its conception and the clever marshalling of the facts, had attracted widespread attention. Adami had often expressed the opinion that one who understood the process of inflammation held the key to everything else in Pathology. Hence it seemed to him natural to expand his work into a complete treatise on disease. He agreed to the proposal, but his plan grew until it resulted in a work in two volumes of about one thousand pages each.

Before this time the best works on Pathology had been German, in volumes and systems that had not been translated, and were, therefore, unavailable to the great mass of English-speaking students. Those in English, some of which had enjoyed great popularity, were more or less stereotyped, and did little more than record facts and describe phenomena. It seemed to be of little utility to add one more to the series. Adami, however, felt that the time had come when the various theories advanced to explain morbid conditions should be sifted, the relevant facts ascertained and placed in their proper perspective, and, on a broad basis of biology and physiology, a new explana-

tion of morbid bodily activity should be advanced which would be at once true and comprehensive. In other words, the actual facts were to be ascertained, so far as was possible, and from them the general laws governing the incidence and evolution of disease were to be formulated. Furthermore, he saw that a text-book should afford a training in medical thought, and that a student should be educated along lines which would teach him to apply general principles to the elucidation of particular problems, and to regard phenomena not as isolated facts but as parts of a logical and coherent story. The title of the work—*The Principles of Pathology*—was significant of the new view-point.

It was one thing, however, to project a book along these lines and another to develop the plan logically, consistently, and with a due regard to considerations of size. It soon became evident that, in order to avoid unnecessary repetition, there must be laid down at the beginning certain fundamental principles dealing with such matters as metabolism, growth, multiplication, adaptation, differentiation and fertilization, and this demanded a consideration of the cell, its structure and relations, its chemistry and physiology. Virchow's *Cellular Pathology* was at once the inspiration and the starting-point of Adami's conception, developed more completely in the light of the fuller knowledge of his time.

After a preliminary discussion of the nature and the function of the cell, the train of thought passes on naturally to the question of inheritance and to the post-natal acquirement of disease. The causes of

disease are dealt with in a systematic manner, and then the local and systemic reactions to injury. Finally, the tissue changes resulting from disease are considered in their general aspects. This concludes the first volume, that on " general " Pathology.

The second volume, concerned with " systemic," sometimes called " special " Pathology, was produced jointly with the present writer, at that time Assistant Professor of Pathology and Lecturer in Medicine at McGill University. The problem now was to present Pathology as it concerned particular organs and systems of the body, to indicate the relations between local and generalized disease, and to do it in an interesting way, without too slavish an adherence to precedent. Accordingly, believing that the key to the proper understanding of disease processes was to be found in the first volume, no attempt was made to deal with the subject of morbid anatomy in an exhaustive way. Realizing, too, that it was desirable to produce a work that would have an immediate practical value, considerable attention was given to the subject of disordered function, or, as it was then sometimes called, "physiological pathology." Accordingly, consideration of the principal systems of the body was introduced by chapters dealing with the causes and effects of disordered function, somewhat after the fashion of Krehl's *Clinical Pathology* and the larger " Systems " on Pathology of the French school. In this way theory was linked up with practice. In so far as the apportionment of the task was concerned, the senior author was responsible for the greater portion of the introductory chapters to the circulatory

and respiratory systems, the introduction to the ductless glands, and about half of the introduction to the urinary system; the junior author was responsible for the whole of the descriptive pathological morphology and histology, together with the remaining introductions. As far as possible, references to research work in English are given, not in any spirit of Chauvinism, but to meet the needs of the average student and practitioner in English-speaking countries.

The first volume of *The Principles*, which is entirely from Adami's pen, is written in a flowing easy style, a little diffuse, perhaps, in places, but always telling and at times trenchant. So characteristic is the style, indeed, that those who knew Adami could always identify his writings. Perhaps the next thing that strikes one is the wide range of the author's reading. His industry and his memory of what he read were remarkable. Everywhere is manifested that power of analysis of which he was a consummate master, and the discussion of most of the subjects is deeply impressed with his own original points of view. Some subjects he made particularly his own. His development of the biophoric theory, to advance a more reasonable explanation of metabolism and a more adequate conception of what constitutes vitality, is specially notable.

The biophoric molecule is conceived of as a central body, or ring, on the analogy of the " benzol ring," which is provided with " side-chains." The central ring is comparatively stable, but the side-chains can be built up or dissociated with greater ease. As the environment is modified so do the side-chains undergo

modification. The action and reaction of the biophoric molecules upon each other, through the intermediation of their side-chains, constitute metabolism. And, as these side-chains become utilized in the polymerization of biophoric matter, there is a progressive increase in the complexity of the biophoric molecule, amounting sometimes even to the formation of new biophores. This latter constitutes growth and differentiation of cells.

This conception is illuminating, leading as it does to a new apprehension of what constitutes "vitality." It led Adami to discard Herbert Spencer's celebrated definition of "life," as given in his *First Principles*, and to hold that "life is to be regarded as a state of persistent and incomplete satisfaction and dissatisfaction of certain proteidogenous molecules." Similarly, metabolism is "the constant reaction and interaction between these molecules and the medium in which they exist," and must be regarded as the primary and basal characteristic of living matter.

Adami's views in regard to enzymes were also novel. For him, enzymes were not proteins or other entities but, rather, properties or qualities of the constitution of the proteid molecules. Metabolism was dependent on, or is a manifestation of, enzyme action, and this whether it be normal or abnormal.

On considerations of this kind Adami built up a "biophoric" theory of inheritance which in his opinion was capable of elucidating all the different types of inheritance. By it he explained how hereditary characters may be conveyed through a relatively small number of molecules of highly complex organ-

ization; how those molecules can, in the course of amphimixis, undergo modification through interaction; how they can become modified through the influence both of amphimixis and of environment; how, similarly, they may undergo retrogressive changes and lose certain properties under the same influences. It will be gathered from this that Adami was one of those who hold that environment plays a part in the production of variation.

Another subject on which Adami wrote with great distinction was Inflammation. He held that a knowledge of the inflammatory process lay at the foundation of all Pathology. Consequently, when in 1906 he was invited by Sir Clifford Allbutt to write the article on Inflammation for his *System of Medicine*, he felt the importance of his task and put into it his best endeavour. Not that he brought forward any facts that were not previously known, but his special excellence lay in his marshalling these facts in proper juxtaposition, establishing their correlation, and approaching his subject in a new and illuminating way. His study led him to lay down his well-known definition of Inflammation—the local reaction to injury—at once simple and yet all-embracing, a definition unclogged by descriptive or teleological connotations. As he stated himself, he endeavoured to select those facts that could not be gainsaid and to draw from them the deductions that seemed most rational. The article received widespread attention, and was soon accepted as the *locus classicus* on the general subject of Inflammation, and so it remains. It went through four editions, the last appearing in 1909. As each succes-

sive edition was prepared, all new matter of first importance that had appeared in the interval was incorporated, until the article, as it originally stood, was considerably supplemented.

In introducing his subject Adami writes a critical analysis of the various definitions of inflammation that had been proposed. His studies led him, in the end, to enunciate an original view. Inflammation had been considered essentially an injurious process leading to cell- and tissue-degeneration. Adami regards it as the series and sum of the reactive processes set up in the tissues as the result of injury, bringing about, not destruction, but the very reverse, and he states his conception of the process in these words :— "It is the series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part, or, briefly, as the local attempt at repair of actual or referred injury."

In his treatment of the subject of the systemic reaction to microbic injury, or infection, Adami introduced a new conception, namely, that of *sub-infection*. This he had advanced, indeed, some years before (see the *Journal of the American Medical Association*, XXXIII, pp. 1506 and 1572, 1899, Nicholls, Ford, and Charlton), and time only confirmed him in his opinion. Briefly stated, the doctrine of sub-infection means that living bacteria are continually passing into the animal body from the alimentary and respiratory tracts, reach the various organs, pass out into the blood stream and are eliminated by the kidneys. Some of them are promptly dealt with by the various phagocytic cells, with the result that some are killed at once and others

merely attenuated. In the ordinary healthy body such bacteria do no harm; they are few in numbers and are easily taken care of. But, for example, should the intestinal mucosa become congested or inflamed, the bacteria within the lumen of the bowel multiply, pass through the wall, and are phagocyted in greater numbers by the cells; they are more virulent and, when they reach the liver, cause degeneration of the specific parenchyma, with "replacement" and "reactive" fibrosis. The effect of such continued passage of considerable numbers of bacteria into the system is tantamount to growth of the same within the tissues. A slow degeneration of the higher, more specific, cells takes place, together with a slow proliferation of the lower (connective-tissue cells), leading to replacement of the former by the latter. In this conception subinfection affords an explanation, at least in great part, of such conditions as cirrhosis of the liver, chronic interstitial nephritis, and arteriosclerosis, and, possibly, accounts also for some cases of so-called "cryptogenic" infection.

The omentum and the part it plays in connection with inflammation was a subject that Adami rescued from undeserved neglect. He showed that this structure had an almost uncanny faculty for searching out areas in the peritoneal cavity that are irritated or inflamed; that it has much to do with the accumulation of leucocytes and the formation of fibrin at the seat of injury; and that in the case of perforation of a hollow viscus it frequently saves the situation by sealing up the hole.

By his treatment of the subject of fibrosis he shed

new light on certain clinical problems. He recognized that many, perhaps most, instances of fibrosis are the end-processes of inflammation, but emphasized also the view that some are of the nature of " replacement," the fibrous connective tissue proliferating *pari passu* with the degeneration and loss of the specific parenchymatous cells of an organ, as in cirrhosis of the liver, or in the substitution of dead material, such as thrombi and fibrinous deposits, by living fibrous tissue. Furthermore, he showed that many cases of fibrosis, particularly those met with in connection with arteries, veins and lymphatics, are due to strain, as a reaction to long-continued stimulation, and are not primarily of an inflammatory nature.

The subject of immunity Adami dealt with in a very argumentative and illuminating way. He accepted Ehrlich's " side-chain theory " almost in its entirety. Such criticism as he offered was intended to clear up certain points that Ehrlich had left unexplained, and were based on his (Adami's) conception of the nature and properties of the biophore. In view of the fact that, at the present day, Ehrlich's theory is somewhat discounted, or, rather, perhaps has had to be restated in terms of the new colloidal chemistry, it would serve no useful purpose to discuss the matter in detail.

The classification of tumours, a subject elusive and fraught with much difficulty, Adami made peculiarly his own. His classification, though at first attracting much attention, never became generally adopted. This was probably due to the fact that it involved a new terminology which entailed some trouble to understand and acquire, and, furthermore, did not

appeal as a necessity to those of a "practical" turn of mind. Yet there can be no doubt that a careful study of it would do much still to clarify the situation. Adami did not, indeed, insist that his nomenclature should be used for every-day clinical purposes, for which the current names for the typical tumours and the terms carcinoma, sarcoma and endothelioma were adequate, but he did feel that it was necessary for a more exact and truthful expression of tumour-relationships. It was, however, for the time being, merely a framework on which to group ideas. Like Waldeyer's, Adami's classification is based on embryological considerations, but it is more adequate, because based on a fuller knowledge.

Although he based his classification on Waldeyer, he went much farther. Starting with the three primitive layers, he emphasizes the point that the epiblast and hypoblast very early in development form layers or membranes, while the mesoblast, derived from the hypoblast, forms a mass of cells having no definite arrangement among themselves and not forming a true layer. While the hypoblast gives rise to mesoblastic cells, in the main it exerts its power to form membranes.

In time the embryo comes to be composed of cell-collections of two orders—"lining membranes" and what may be termed "pulps" (for lack of a more expressive word). The "lining membranes" are the persistent epiblastic, hypoblastic, mesothelial and endothelial layers; the "pulps" are the main mass of the neuroblast (of epiblastic origin), the notochord (of hypoblastic origin), and the mesenchyme (of meso-

blastic origin). In the adult the tissues derived from these two orders of structures exhibit well-marked differences. The two series may be designated, accordingly, "lepidic" (from λεπίς, a scale, rind or skin) and "hylic" (from ὕλη, crude, undifferentiated material).

All the tissues of the body may be grouped under one or other of these two categories, and corresponding with these, and derived from them, are the tumours, which can be denominated accordingly lepidic tumours or "lepidomata," and hylic tumours or "hylomata." Furthermore, the lepidomata may be divided into two broad groups—the *primary*, those whose cells are derived in direct descent from the original epiblast and hypoblast; and the *secondary* or *transitional*, those whose cells are derived in indirect descent from the same, *i.e.* have, in the course of development, passed through a mesoblastic (mesenchymatous) stage before coming to form portions of a lining membrane.

The merit of this classification lies in the fact that tumours of unlike orders and histological appearance are no longer grouped together and those of like characters separated. There is, in other words, a fundamental character applying in common to the members of each group. Like comes to like, and the unlike are separated from the unlike.

In spite of the fact that advances have been made in embryology since Adami wrote, advances that have modified our conceptions of the blastogenetic relationships of tissues, his classification still remains the best of its kind. The objections that can be raised against it are not more weighty than those that can be advanced

against any of the current and more popular classifications of the present day. It may well be that his conception, if not indeed in the form in which it was presented, may prove to be the basis of a thoroughly adequate presentation of the matter, when our knowledge shall have become more complete.

J. G. ADAMI: HIS LIFE AND INFLUENCE AT McGILL

By C. F. Martin, M.D.,
Professor of Medicine and Clinical Medicine, McGill University, Montreal.

It is now fifteen years since John George Adami gave up his active participation in the direction of the Pathological Department at McGill University; for although he did not retire finally until 1919, nevertheless, the period of war service into which he entered at the very outset precluded the possibility of his undertaking his duties at the University in any very active way. The greatest achievements of his pathological career, however, had been accomplished prior to that time, viz. during the two decades following his arrival at McGill University. His many contributions to pathological science and his really great text-books were written during his sojourn in Montreal and at McGill.

Professor Adami came to McGill University as a very young man, and at a time when things were most propitious for the creation of a progressive Department of Pathology. No one could ever have grasped the opportunity with more diligence, energy and success. It is no mere commonplace to say that a new scientific life was created in the Medical School

from the time of his arrival. True it is that there had been excellent pathological work done, chiefly along the lines of Morbid Anatomy and Clinical Bacteriology, but apart from the almost epoch-making work of one individual—Wyatt Johnston—there had been no general stimulus given to organized scientific research in this domain.

Young as he was upon his advent to McGill, it took but a very few weeks for him to demonstrate his vision on behalf of the University and the country at large. In one of his earliest public addresses, he enunciated in no uncertain terms the opportunities in Human and Comparative Pathology if the necessary equipment and facilities were provided. And so it happened that the public was aroused; that with the assistance of one of our benefactors, a commodious new laboratory was erected and equipped, and a group of younger men gathered about Adami, stimulated as never before with an enthusiasm for research that was but natural in such company. It was very largely due to his inspiration that younger men were induced to go abroad for the study of Pathology and return to help him to build up a department. It was due to him also that in both hospitals, and in the University as well, a Department of Pathology was organized to provide teaching and service for the community, for the graduates and for the undergraduates. When the new Royal Victoria Hospital was completed in 1894, he was naturally appointed to the directorship of the Pathological Department, and was called upon to exert his influence as a leader in the scientific thought and development necessary to progress in such a large

institution. He became not only Professor of Pathology but also occupied the unique position of Pathologist to both of the large English hospitals in the city, as well as that of Supervisor of the scientific work in the subsidiary minor hospitals in the community. His personal influence was everywhere, and this, combined with his energy and his marvellous capacity for stimulating investigation, dominated to a large extent not only the University but the country at large. Everyone came to Adami for advice, and whether it was around his breakfast-table, where he so often gathered his friends on Sunday mornings, or at his bountiful dinners in his home, there was the same infusion of enthusiasm for the advancement of Science, which, verily, seemed to fill the atmosphere. At tea-time he was usually in his laboratory, receiving friends who came for advice, discussing with them and with his young assistants the work in hand; planning courses of instruction; discussing the recent sections; participating in Government schemes for Comparative Pathology, Municipal Health and what-not. An indefatigable worker, he could turn his hand to any technique, develop new methods of scientific investigation, and could dictate with ease communications on the subject which would give them life and practical application.

Adami founded the Lister Club, its members comprising the laboratory workers of the University; these meetings included all those interested in the Biological Sciences and all other subjects ancillary to Scientific Medicine. The informality of the meetings added extra charm to the function, and with his

characteristic ingenuity he devised every method to keep them so. The third man to enter the meeting was *ipso facto* made the chairman of the meeting. The meetings were held in the laboratories, and when chairs were insufficient for the needs, a laboratory bench was made to suffice. Everyone came with enthusiasm and appreciation, and for the junior members especially the meetings were something not to be missed.

It was Adami's personal qualifications, however, which endeared him most to his colleagues and to that coterie of friends, scientific, artistic and literary, with whom he associated, exchanged ideas and made his plans, and which exerted a widespread influence touching every element of the community, and, most of all, the group of younger men gathered about the University.

There will always be remembered that group of the so-called " Three Musketeers "—Ruttan, Johnston and Adami—who lived a Bohemian and yet a thoroughly comfortable life in their commodious mansion in the west end. One can see these three now, established in their quarters, surrounded by friends, giving life to the Medical School and improving its social and scientific atmosphere.

Perhaps his greatest asset was his capacity for interpreting pathological processes and giving new interest to seemingly commonplace occurrences in disease. Take, for example, his illuminating article on " The Low-Grade Infections "; on " The Protective Function of the Omentum "; " The Systemic Invasion of Bacteria in Weakened States "; his theories on

Heredity; his classification of Tumours—each one in itself an original communication which developed new ideas and gave added interest to the subject. As a personality, his cheery optimism stood out prominently—a hope not to be denied regarding everything connected with his work, his environment and himself. In the face of every trial, and they were not few, he carried a brave front; misfortune never seemed to cast him down for long, and his ability to keep within his sorrows from any adversity marked him as a really brave man, to which fact, perhaps, most of all, his last long illness bore ample testimony.

Writing from his home to one of his assistants in Berlin after the fire which had destroyed the McGill Medical Building in 1907, including his library and laboratory equipment, he said:

> "We are pretty well wiped out, especially I, but I suppose it is my philosophy and habit of mind not to be depressed. Probably I shall feel more and more as time goes on the loss of all my library."

Subsequently, when he heard of my effort to circularize the pathologists of Europe for reprints and books to restore his losses, and when he heard, further, of my intention to buy the valuable library of the pathologist Schmaus of Munich, he wrote:

> "You made my mouth water, I can assure you, when you told me that there was a chance of obtaining Schmaus's rich *Handapparat;* and now, dear old gentleman, comes your letter this

> morning that you have gone and done it and have obtained the prize! Insurance or no insurance, I cannot tell you how grateful I am. I do sincerely hope that the bread thus cast upon the waters will be returned to you in not many days and in many ways. I confess, old man, I am full of hope for the future, not merely for myself but for the whole Medical College. . . . By the bye, I had a letter only to-day from Shipley, saying they had formed a committee in Cambridge to help us with our library. All this makes me feel a big humbug. Of course I was fond of that library of mine, but, after all, it was a small affair, and now it looks as though it is going to be restored many-fold."

Such was his optimism, such his power through co-operation and appreciation to stimulate those about him to better things.

It is, perhaps, less difficult to assemble in retrospect the effects of his long period of work in McGill University than it was at the time of his departure from the School.

What Osler had done some fifteen or twenty years previously in advancing knowledge and in stimulating research was, as it were, revived by Adami in later years, and the long list of his assistants, who have achieved distinction in one or other field of the Biological Sciences, bears evidence to the influence of his work. In his writings, whether scientific or popular, he had not only a facile pen and lucidity of expression, but he possessed, moreover, a compelling

frankness which dealt fairly and squarely with the subject in hand and left no doubt as to his meaning. Cultivated in arts, as well as endowed with scientific knowledge, he was enabled to infuse an equal amount of interest in subjects far afield from his daily routine. Few men in Montreal at the time had a wider knowledge of general literature or a better taste in art. His home was always a meeting-ground of cultured people, and the appointments of his household demonstrated not only his knowledge of things artistic, but likewise a genuine taste for things that were good.

July 15th, 1929.

PROFESSOR J. G. ADAMI AND THE MEDICAL MUSEUM OF McGILL UNIVERSITY

By Maude E. Abbott, M.D., McGill University, Montreal,
Managing Editor of the *Journal of Technical Studies* and
Bulletin of the International Association of Medical Museums.

The Chair of Pathology at McGill University was created in the year 1892, with Professor Adami as its first occupant, and it carried with it the office of Director of the Pathological or "Medical" Museum, as this was commonly called, from the days when the formation of its collection was the care and responsibility of the Faculty as a whole. At the time of his advent the Museum contained a collection of specimens dating from the foundation of the School in the year 1823, and covering the period before Pathology had been evolved as a separate Department. In those days the founders of the Faculty and their immediate successors, both physicians and surgeons, had followed their patients from hospital wards to the deadhouse, and had themselves performed the autopsy and transferred to the Museum shelves their valued specimens, which they had themselves preserved, with meticulous care, in alcohol or arsenical solution, or by drying and covering with sealing-wax, or by maceration and mounting, in the more primitive methods then in vogue. In addition

to these historic specimens from the earlier days of McGill, which numbered in all between three and four hundred, there was the splendid collection made by Sir William Osler between 1877 and 1884, the fruit of 750 necropoles performed by him when Pathologist to the Montreal General Hospital; this had been further augmented by the efforts of Osler's brilliant successor there, the late Wyatt Galt Johnston. The whole formed a heterogeneous mass of pathological material in a more or less good state of preservation; it contained indeed a large number of specimens of real scientific value, many of which had been the subject of published articles, or were in active use for the illustration of lectures. But no attempt had been made at the co-ordination or extension of these into ordered series for teaching purposes, nor had even a rudimentary catalogue of the whole ever been completed. For up to this time the " Curatorship " had been a more or less honorary office, usually vested in the Professor of Medicine; and work done on the collection as such had thus necessarily been of a very desultory kind, dear though the Museum and its contents were to a Faculty whose interest and care it had always been.

A new era was now at hand. Coming fresh from the old land, and familiar with the great pathological collections of the British museums, himself imbued with the spirit of the collector, and endowed with that vision of the principles of Pathology as the underlying basis for the teaching of clinical medicine that was to us one of his greatest assets, Professor Adami saw clearly the importance of conserving and develop-

ing to the full the precious legacy that lay concealed in this original Museum collection, to which his new Department had fallen heir, and which was to form, under his Directorship in the coming years such an integral and important part of his administrations. For the fulfilment of such an undertaking two steps were necessary :—(1) From the great hospitals of the School a wealth of specimens must be added, with natural colours preserved by the newly-discovered methods of Kaiserling and Jores, and carefully selected to the end that a teaching collection might result illustrating all sides of the great subject of Human Pathology; and (2) a Medical Officer with enthusiasm and energy must be appointed for the care and upkeep of the Museum, to whom might be entrusted the conservation, development and cataloguing of the collection.

As Pathologist to the then newly-erected Royal Victoria Hospital, Dr. Adami himself immediately set about fulfilling, from his own autopsy-service, the first of these requirements; and his efforts there were ably seconded from the Pathological Department of the Montreal General Hospital, where Professor Wyatt Johnston, and later John McCrae, were the Pathologists. Thus a wealth of carefully chosen material, with natural colours retained, streamed in to swell the volume of the uncatalogued mass that still lay awaiting its caretaker, and the feeling " the Museum needs a lover " grew apace.

It was early in the year 1898 that, shortly after returning from three years' post-graduate study in Europe, I was privileged to enter Professor Adami's laboratory as a volunteer worker on the subject of

"Pigmentation Cirrhosis of the Liver in Hæmochromatosis" (published *Journ. Path. and Bacteriol.*, 1901, vii, 55). In the autumn of that same year I was offered by the Faculty and accepted the appointment of Curator of the Medical Museum, on the recommendation and under the Directorship of Professor Adami. My duties were to watch the autopsies for gaps in the teaching series of specimens; to adapt and apply a system of classification of these; and to form a descriptive catalogue of the collection. Out of the active exercise of these duties other functions soon evolved. Of these the most important were: the development of systematic group teaching within the Museum, through which, both by quiz-demonstration courses and by "Students' Descriptive Exercises," the entire material in the Museum was covered with successive groups of students of the final year within the college session; these Museum demonstrations, at first conducted on a volunteer basis with Dr. Adami's authority, were later made by the Faculty an integral part of the curriculum and were carried on with unceasing activity during the succeeding twenty college years. Secondly, the formation of an extended descriptive catalogue of the collection "in collaboration with clinicians," which won the enthusiastic support and personal co-operation of Sir William Osler; and thirdly, the organization of the International Association of Medical Museums, an undertaking carried out in the years 1904–1908 in collaboration with the Curator of the Army Medical Museum under Professor Adami's personal supervision and interest, and which has grown now to a

world-wide Institution of recognized usefulness and importance.

Space does not allow of an account in any detail of the extraordinarily rapid growth and consummation of the Museum itself in the seventeen years during which it was my privilege to conduct its activities under Professor Adami's generous and kindly administration. From a chaotic mass of material in an indifferent state of preservation it had been developed into an ordered collection of specimens, housed in the palatial new building of the Strathcona Museum (erected after the fire of 1907 had destroyed the older one), with a staff of trained technicians and an equipment worthy of the status it had come to occupy as one of the first Teaching Museums on the continent.

This rapid growth was undoubtedly due to more than one factor, for the expansion of their Museum was ever the cherished object of all the more progressive members of the Medical Faculty. But first in importance of the causes contributing to it was Professor Adami's mental attitude, his scientific breadth of vision, and his generosity of spirit to those in his Department. He was at all times a sympathetic and inspiring Chief, unfailing in his interest and encouragement in the work in hand, and to me, in my work in and for the Museum, he gave always that best of all guerdons, freedom for the development of my own ideas and ideals in what had become my chosen field of labour, and that autonomy in the management of details that is a necessary condition for sincere and honest work.

May 14, 1929.

J. G. ADAMI: RECOLLECTIONS OF HIS DAYS IN MONTREAL

By Oskar Klotz, M.D.,
Professor of Pathology and Bacteriology, University of Toronto.

It was ten years after Dr. Adami had arrived in Montreal to accept the Professorship in the new Department of Pathology at McGill University when I first met him. By this time he had completed the organization of his laboratories both at McGill and at the Royal Victoria Hospital. These laboratories were running in full swing with their complement of workers and with the enthusiasm which Adami was so well able to infuse into his associates. At McGill, the J. H. R. Molson laboratories housed the Department of Pathology and Bacteriology, and contained all the essential equipment for the instruction of the undergraduate students and for carrying out research by the various men who sought guidance under Adami's hand. These laboratories were adequate but not superfluous. Their arrangement was simple, and it was evident that in developing his scheme for both teaching and study he had avoided needless expenditure in elaborate furnishings and had invested the resources in the variety of equipment which is demanded for progressive investigation. The large class-room occupied one extremity of the apartment

and was available for the needs of about eighty students. The manner of arrangement, which he himself had planned, was the best which I had seen, and I was much struck with the practical manner in which the student was enabled to undertake his studies and to make his class-room efforts simulate individual investigation. The student was encouraged to view each problem as one demanding solution in his own hands, and the opportunities were available for the successful completion of his own observations. Associated with this class-room were the accessory rooms for preparation, sterilization and for general equipment found in all laboratories of that time. In close relation to these quarters the Assistant Professor, Dr. A. G. Nicholls, occupied a room to himself.

Dr. Adami had arranged at his own expense a library for departmental use. This room served both as his study and room for general administration. All who were associated with the laboratory were welcome to use the library and were encouraged to keep abreast with the literature of pathological and bacteriological subjects. Here Professor Adami was to be found in the first hours of the morning and the late hours of the afternoon. In the intervening time he was in his own laboratory or in the laboratories of the Royal Victoria Hospital, supervising the routine analyses and taking charge of the autopsies.

This library at the pathological laboratories in the School was the sanctum sanctorum of the department. It was a close, stuffy room possessing no windows to the exterior and only receiving light through a transom in the roof. It was usually necessary to

have the electric light burning during the grey days of the Montreal winter. The absence of windows gave a seclusion to the apartment and prevented distraction of thought which so commonly comes from the presence of a beautiful scene observed from a room in which one is engaged in deepest thought. A conference in this library was never disturbed by outside noises nor the glare of a summer's afternoon. The only noise which occasionally broke the silence was from some of the tired animals housed in the somewhat cramped quarters of the Department of Physiology, then under the guidance of Professor Wesley Mills.

The work-rooms of the juniors lay in an apartment beyond the library of our Chief. Here there had preceded me a number of men who subsequently took their places in the activities of the medical world in different institutions. There were never more than two or three at one time engaged in continuous research. Their rooms were small, their furniture was simple, but in each was to be found an equipment well arranged for the particular research in hand. A common work-room adjoining the research cubicles contained the larger apparatus which was used by various men in the department. The general feature surrounding these laboratories was a sense of freedom to pursue one's work as one felt inclined, without the urge of outside influence, without the demand for gaining preconceived results, without the interference aroused by over-enthusiasm, and with the maintenance of a sincere cordiality between each and every one who was housed under this common roof.

All this was well established when I, a stranger, in 1903, wended my way to Montreal to seek the contact of one known to me only by the character of his work.

It was late in September, one of those clear, cool, sun-bright days in which every Canadian rejoices, when I met Professor Adami on my way to the Royal Victoria Hospital. I had just come from the Montreal General Hospital, where John McCrae occupied the post of Pathologist. Jack came with me to supplement my letter of introduction. Coming down the hill close to the present site of the Medical School was a cheery little man with light, quick step, a swinging cane and a voice of greeting. I was immediately at home in his presence, and after a short chat he enthusiastically welcomed me to try my fortunes in McGill. There was a certain amount of formality which had to be attended to. I must go to Dr. Roddick (later Sir Thomas Roddick), who was Dean of the Medical School, to make my formal application and to offer my credentials. As McCrae and I turned to go on our way, Adami quickly rejoined us, telling me that he believed he could simplify the procedure and have me join his laboratories within a very short period. This turned out to be the case, and shortly afterwards I was installed as Governor's Fellow in Pathology at McGill. Jack McCrae and the Chief were always intimates, Jack having spent a year as Fellow in Pathology before assuming the position of Pathologist to the Montreal General following the death of Wyatt Johnston.

At this time, too, the laboratories of the Royal

Victoria Hospital had been fully established. Dr. E. Archibald along with Dr. Keenan had charge of the surgical diagnoses. Dr. Adami himself looked after the autopsies with the assistance of Dr. A. G. Nicholls. Bacteriology had not been organized in a single laboratory, but was carried out in part by members from the departments of medicine, surgery and gynæcology. These were the days when the clinical departments were uncertain as to the degree to which they desired to have laboratory work performed upon their patients in the ward, and to what extent it was permissible to allow the Pathologist information and contact with the living subject. It was evident that the clinical branches desired to obtain all the information and all the assistance that could be bled from the laboratory source of knowledge, but there was a reluctance in giving an equal return of their own experience to those interested in laboratory science. Theoretically, there was an intimacy between all departments, but the practice had not yet been established to receive fully the confidence of those from whom they were gaining most in the advance of their own subject. It was fortunate, however, that the new generation which was growing up under the guidance of Professor Adami was anxious to co-ordinate all groups who were interested in the study and treatment of disease.

Adami had arrived in America at an interesting time in the development of laboratory sciences in medical schools. The laboratories of Pathology and Bacteriology were just becoming seriously regarded as essential to the training of medical students, and

although these subjects were taught in didactic courses by the professors of medicine, few schools had equipped themselves with the facilities adequate for the presentation of the studies in practical exercises. Welch and Prudden were the first to go abroad for a thorough grounding in Pathology, and with the avowed intention of remaining in laboratory work to the exclusion of practice. Welch's experience abroad included studies under Waldeyer, Hoppe-Seyler, von Recklinghausen, Ludwig, Cohnheim and others. Prudden had been with Arnold at Heidelberg and Heschl in Vienna. Upon the return of these men to America in 1878, little opportunity presented itself to continue their enthusiasm. Bellevue Hospital offered an opening for continuing interest in autopsy studies, but had neither laboratory for research nor for student instruction. Welch served here for six years, while Prudden joined Delafield at the College of Physicians and Surgeons. When Welch went to Baltimore in 1885, Councilman was working at Pathology in the temporary laboratory apartments, later joining Harvard in 1891 as head of the Department of Pathology. By 1892, when Adami came to Montreal, a few more schools had arranged for the establishment of Pathology on a satisfactory basis, but none of the sister schools of medicine in Canada had taken any serious steps in this direction.

Thus, in claiming for Pathology the most important place in the pre-clinical instruction, McGill was in a most favourable position to be placed in the forefront of medical advance. It was Adami who appreciated the opportunity of fulfilling this claim to its largest

measure. He had entered upon the work of developing the laboratories at McGill both for the instruction of the student, the training of his assistants and the furthering of research with the keenest enthusiasm.

Within a short time after his arrival, Adami was recognized as a teacher of outstanding character. Students crowded his lecture-room for the enjoyment of hearing him present his topics in a clear logic, a cultured English, and with a versatility in ancillary subjects which appealed to the audience as a new departure from the usual spirit of didactic lectures. Adami had the mental faculty of cataloguing all useful information, whether received by experimental observations, in discussion or in reading, for future reference. A good memory was his, and a memory for minute detail. In lecture he would refer to the accomplishments of others, in historical sequence, so that the development of thought and science bearing upon the subject in hand was obvious even to the least interested of his student group. I am sure that the students of Medicine, graduating from McGill between 1895 and 1914, recall to mind with greater pleasure their studies with Professor Adami than those of any other department. His genial approach to the students individually and his desire to be helpful to each in his difficulties endeared him to each succeeding class. Adami never took advantage of his position as Professor to "lord it over" the student body; in fact, often his attitude was quite the reverse, when he would give a sympathetic hearing to individuals or groups concerning clashes in the curriculum, complaints of overwork or grousing on examinations.

To the student he was firm in respect to the need for study, but lenient and untiring in his efforts to be of service.

His enthusiasm in teaching was not only displayed in his lectures, but equally, if not more so, in his autopsy clinics. For a number of years McCrae and I were his first assistants and performed the technical work at each autopsy, while Adami carried on a running comment and discussion of the lesions which were in turn uncovered. The discussion was not confined to the pathological processes, but these findings were correlated with the clinical reports which always accompanied each case. In cases with diverse pathological processes, these discussions led to controversies with the attending clinicians as to the significance and importance of lesions not recognized during life. Such controversies were the delight of the student who from his own contacts had learned that clinical dogma has no place in the science of Medicine. In these respects, however, the pathological clinics at the Royal Victoria Hospital differ in no way from those at other institutions.

It does seem strange that Science and Practice are not always the best of friends. To the general public the practice of Medicine represents the art and science of the profession and they link the two as inseparable partners. The art of Medicine must ever be the most important factor in the success of the practitioner, for he will never succeed if he hopes to use only the science of his profession in his approach to his patient. And this being so, the art is the means of advertising his wares, and sometimes, even commonly, the art is

the chief stock in trade available to the man in the successful practice. Such a one soon falls behind in his appreciation of the science and its most recent truths. The careful autopsy reveals the extent to which the clinician understood the processes of disease which he treated during life. Moreover, too, the findings at the autopsy must themselves be carefully weighed, not allowing the unusual to overbalance the proper judgment in the case. This was the situation which Adami loved to analyze. He viewed the problem of each case from a broad impartial light, and preferred to see the principles involved rather than the detail of minutiæ. For those who wished to have the Pathologist expound upon each alleged sign and symptom, Adami's exposition was unsatisfying, but for us, who with him were studying the "causes and seats of disease," there was much appreciation. In these discussions Jack McCrae was very helpful, as he possessed a direct and logical mind, and a snappy comment which savoured of Carlyleism. McCrae's interests were partly clinical and in training pathological; he could visualize the clinical events, and then from our findings he would bring some co-ordination of the several views. Adami was very appreciative of the value of McCrae's association, and our discussion, beginning with a topic at the autopsy table, was often prolonged long past the hour for dinner. Then often Adami would join us at the hospital table or at a restaurant to continue our discourse on problems in Pathology. Those of us who had the opportunity of being a party to these occasions were indeed fortunate.

Adami enjoyed the company of the group of younger men associated with the Medical Faculty of McGill University. At the beginning of the century there was an unusual group of young men growing up in the various branches of Medicine. Almost every department was represented by keen young men, all of whom had served an extended post-graduate training both at home and abroad. Interestingly enough, these young men occupying junior positions at the Royal Victoria Hospital or at the Montreal General Hospital became banded together in a social organization called the Krausmanian Club. One might suppose that the group gravitated to a common outlet of thought, guided by a spirit which since the War has been prevalent in such organizations designated as the "Young Turks." However, the Krausmanian Club had a spontaneous origin after a dull evening of a quasi-scientific discussion on tuberculosis. The discontented young knights of Æsculapius (McCrae, Klotz, Turner, Little, White, McKee, Campbell Howard, Francis, Archibald, and others) betook themselves to Krausman's restaurant, where matters practical, philosophical and social were discussed over the cups into the small hours of the night. This group met regularly once a month for a number of years, and Adami became an occasional attendant, being one of the few of the senior members of the McGill Faculty who were admitted into the circle of these young free speakers. Always at home with the junior members of the Faculty, he enjoyed the freedom of their expression and entered heartily into their mirth and discussion.

He was always an acceptable member of such gatherings.

Adami loved people and was pleased to have friends and acquaintances gather at his home, or to entertain small gatherings at the club. He was a brilliant conversationalist and gave a keen ear to the interests of others. Possessed of a good memory and a keenly analytic mind, he was able to sift new information and store it in his mental catalogue with unique dexterity. His versatility in varied topics immediately made his comments interesting, and the personal charm of his presentation won him many admirers. At his table one would meet from time to time men of science, of letters, of music, of the cloth, adventurers from the home-land discovering Canada, artists of the new and old schools, men of finance or ne'er-do-wells. At times the grouping appeared somewhat rash, but the more delight to Adami and all to have a discussion arise among bright minds of opposite views. These evenings were never dull.

J. G. ADAMI: THE SIGNIFICANCE OF HIS WORK IN PATHOLOGY

By A. S. Warthin, Ph.D., M.D.,
Professor of Pathology and Director of Pathological Laboratories, University of Michigan.

Dr. Adami's significance as a pathologist becomes more clearly seen in retrospect than it was at the time when he was actively engaged in the teaching of Pathology and in contributing to its literature. Historically he has left a deeper impress upon the evolution of the philosophy of Pathology than he did practically upon its clinical uses and application. And this is so because Adami had a philosophical turn of mind rather than one of investigation or applied practical use in this field of science. Pathology was not to him a mere servant to the diagnostic clinics; rather it was the broad biologic foundation upon which the whole of the medical superstructure, diagnosis and therapeutics rested, and without which the practice of medicine becomes pure empiricism or quackery. His text-book, *Principles of Pathology*, 1908, was conceived from this view-point, as his preface to this work clearly shows. It was not to be a presentation of pathological data and their classification, as were the majority of the contemporary text-books of Pathology. Back of these data and their classification are the laws or principles governing the production

of phenomena and determining their classification. Adami was primarily in these principles. For the creation or discovery of new phenomena he had little concern, and, therefore, was never a routine cut-and-dried experimental investigator. He could see the wood rather than the trees. He, further, was not greatly interested in the individual phenomena, except from the standpoint of interpretation. He was not essentially a tissue pathologist, either as concerns the gross or the microscopical pathology of any given condition. He was not a tissue diagnostician. He took his pathological data and phenomena from the literature of Pathology, and then sought to give them logical significance through principles derived from deduction and projected against the background of general biology. His great concern was the correlation of the principles underlying normal life and disease. He had a very full knowledge of the biologic science of his time, much more so than his medical contemporaries. He was, therefore, just a little ahead of his time in his understanding of heredity as a factor in disease, in his appreciation of the constitutional factors in determining the individual's reaction to injury, in his conception of the protective and defensive nature of inflammation, of the true significance of the partnership in parasitism, etc. His text-book was, therefore, a unique contribution to the philosophy of Pathology, and not a manual of pathological data and classifications. For this reason it was never a popular teaching text-book with those medical teachers who vaunt the superior value of what is called " practical " in the medical curriculum. From the cultural stand-

point, however, it had a very decided value; and, as we realize now, it had also a prophetic value in that it foreshadowed many of the chief principles of the medical philosophy of the present day. Adami's ingenious application of the "side-chain theory" to the explanation of heredity will have no more permanent value than Ehrlich's hypothesis, but it will have served as useful a purpose in illuminating the significance of the heredity of disease, as the latter has had in the explanation of immunity. The phenomena of immunity regarded as facts at the time his text-book was written are being interpreted in quite different ways to-day, but Adami's philosophical mind made him a forerunner of many of these changes in theory. His views as to the rôle of latent bacterial infection through involution forms in the production of cirrhosis of the liver and of pernicious anæmia anticipated much that is to-day regarded as new and revolutionary in regard to bacterial instability and dissociation forms or cyclostages. At a time when the majority of practitioners were still regarding inflammation as an injurious process, Adami stood out boldly for its essentially defensive and protective nature. As to the much-discussed problem of neoplasm etiology, he early discarded the infectious theory and championed that of a change in cell biology. He was often severely criticized for giving so much prominence to heredity in Pathology, but to-day all of his conclusions as to the importance of hereditary factors in disease are much more than merely confirmed and justified; they have become the foundation stone of modern medical philosophy. He had imagi-

nation also in the treatment of his data, and illuminated many of the difficult problems in medical biology by flashes of interpretative insight. His classification and terminology of the true blastomas constituted a great improvement upon the accepted ones; it failed of general acceptance chiefly from psychological reasons; at times it is impossible to jolt the general mind out of its accustomed ruts, even when the new path pointed out affords an opportunity for easier and safer going. Adami's interest in the Medical Museum was artistic or æsthetic rather than pedagogical. It made the same appeal to him as one of porcelains or pictures, and his reaction to a beautiful arrangement of fine pathological specimens was precisely what it was to the other. He possessed, therefore, the artist's joy in the creation of a museum, and was wholly sympathetic with the ideals of this Association although not himself active in museum creation. All in all, Adami's greatest contribution to medicine was the part he played in setting Pathology on its proper path as the science of the biology of abnormal life. This significance of his life and labours will be more clearly recognized in the future; but surely nothing can more fully give justification to a human life than the later realization that a man was a true prophet, saw clearly, divined correctly and was a forerunner of the truth.

MEMORIES OF THE CONSULTATIVE COMMITTEE, 1920–1926

By Dr. Ernest Barker,
Professor of Political Science, Cambridge.

"Scene—a long and lofty room, with high and richly carved oak wainscoting; heavy stucco-work upper walls and ceiling; double doors, with carved pediment in centre. Long table centre, along the length of the room: Sir Henry Hadow in the chair, at the fireplace: on his right the Secretary, on his left J. G. A.: a dozen other members of the Committee, masculine and feminine, seated down either side of the table."

These words of direction, which come from Dr. Adami's own pen, summon up vividly many ghosts of memory from past years. Such was the room in which we sat together; such the presidency under which we sat; such the membership of the Consultative Committee on which we sat. The Committee had been reconstituted in 1920, after an intermission due to the War; and it met as a new body, eager for work, at the end of that year. There were some twenty of us in all: some from Universities; some from public schools; some from secondary schools, and some from elementary. We soon got to know one another and to become friends; and it was in this way that I first came to know Dr. Adami.

We started with two " references " from the Board —one on " differentiation of curricula between the sexes in secondary schools," and one on " psychological tests of educable capacity." So defined, the subjects sound forbidding; but we found a good deal of interest and even of excitement in their discussion, and some of us (I can speak at any rate for myself) gained no small amount of education ourselves as we heard the evidence given and listened to the subsequent debates. On both of our two original references we were, I think, all of us deeply in Dr. Adami's debt. When, for instance, we started to think about differentiation of curricula between the sexes, we had to ask ourselves what the difference between the sexes was. Our difficulty is reflected in the introduction to the Report which we eventually issued in 1923. " Men and women," we said, " have existed for centuries; but either sex is still a problem to the other—and indeed to itself; nor is there any third sex to discriminate dispassionately between the two." So far as we arrived at any " dispassionate discrimination," it was owing to Dr. Adami, whose pupils we all became. He wrote a memorandum on the anatomical and physiological differences between the sexes, which was printed as an appendix, and to which we drew attention in our Report. This was a bed-rock on which we could build; and without it our building would have been a shaky thing. His help with our other reference—that on " physiological tests "—went further still. He not only contributed to the foundations : he supervised also the whole structure. While we were engaged in the main Committee on the

subject of differentiation of curricula (and while we were being helped by Dr. Adami in the consideration of that subject), we appointed a sub-committee to prepare a preliminary report on our other subject. Dr. Adami was the chairman of that sub-committee, and he devoted himself eagerly to guiding its work during the two years for which it sat, attending and presiding at eleven out of the thirteen meetings it held. When the subject came before the main Committee, in the middle of 1922, the ground had already been explored for it in advance; and in its deliberations the Committee was guided throughout by the scientific and (I would add) the general human knowledge of Dr. Adami. If our final Report on Psychological Tests is a document of scientific value (as I believe that it is), its merit must be in very large measure ascribed to the preliminary exploration he conducted and the subsequent guidance he gave. Without him I feel that most of us would have been lost in a maze. With him we felt that we were safe in playing the game of "follow-my-leader"—and so we arrived at our goal.

The third and last of our references, during the time in which Dr. Adami was a member of our Committee, was that which dealt with the Education of the Adolescent. In its scope, and in the gravity of the problems on which it touched, it was the most important of all. Here again he left his mark on our Report. He was interested in elucidating for us that term of art, "the age of eleven——", and one of the foot-notes in the report (on p. 71) was written by him for our guidance. More than that, he was concerned

in the whole policy and substance of the Report. He served on the drafting sub-committee by which the Report was shaped; and I can testify (for it happened that I attended all its meetings) to the interest he took in our work, the suggestions he made, and the devotion he gave. The theme engaged his mind; and I can never forget the meetings and talks which he and I had together—meetings and talks which drew us closely to one another in the bonds of a common zest and the sympathy of our views. He died before our final Report was issued; but we spoke, in our preface, of the part which he had played in its preparation. "He had won," we said, "the affection as well as the respect of his fellow-members; and he contributed generously both to their deliberations and to the shaping of their conclusions."

I have given my own impressions: I should like to add those of our chairman, Sir Henry Hadow, who was closely associated with Dr. Adami not only on our Committee, but also as a fellow Vice-Chancellor. "His judgment and advice were always of the first importance, not only from his great scientific knowledge, but also from the wisdom with which he used it. We should never have got the Report on Psychological Tests into anything like its present shape if he had not been chairman of the sub-committee by which it was prepared. None of us could have taken his place, and in all our references we looked to him for a lead. He was the kindest and best of friends to us all, collectively and individually, and we are still very much the poorer for his loss."

I have spoken of our formal work on the Consulta-

tive Committee; but there were other sides to the life of the Committee. We could not meet together, month by month, for two days at a time, without being drawn into all sorts of discussions and relations with one another. In all these things he was as generous as he was ardent, giving readily, and giving himself wholly and rapidly, to whatever service he could find. Were we discussing our powers and our relations to the Board of Education? He was eagerly present in the centre of the discussion. Were we talking over some vexed question of current educational policy? He was in the middle of our talk. Many of us owe friendships we shall always value to our meetings with one another on the Consultative Committee. I shall always treasure the memory of his friendship; and many others besides me will treasure it also, remembering those years, from 1920 to 1926, when he was with us, and our thoughts ran quickly together, and we worked with one another, side by side, in a common cause.

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